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318 -001

Ritter® by MIDMARK

Oral Surgery Table

Service and Parts Manual

Serial Number Prefix:
KZ

MA428900

318 -001

FOR USE BY MIDMARK
TRAINED TECHNICIANS ONLY

SF-1587

Part No. 004-0077-00 Rev. F (1/01/04)

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IMPORTANT INSTRUCTIONS

General Safety Instructions

Safety First: The primary concern of Midmark Corporation is that this table is maintained with the safety of the patient and staff in mind. To assure that services and repairs are completed safely and correctly, proceed as follows:

(1) Read this entire manual before performing any services or repairs on this table.

(2) Be sure you understand the instructions contained in this manual before attempting to service or repair this table.

Safety Alert Symbols

Throughout this manual are safety alert symbols that call attention to particular procedures. These items are used as follows:

DANGER

A DANGER is used for an imminently hazardous operating procedure, practice, or condition which, if not correctly followed, will result in loss of life or serious personal injury.

WARNING

A WARNING is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in loss of life or serious personal injury.

CAUTION

A CAUTION is used for a potentially hazardous operating procedure, practice, or condition which, if not correctly followed, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

EQUIPMENT ALERT

An EQUIPMENT ALERT is used for an imminently or potentially hazardous operating procedure, practice, or condition which, if not correctly followed, will or could result in serious, moderate, or minor damage to unit.

NOTE

A NOTE is used to amplify an operating procedure, practice or condition.

Warranty Instructions

Refer to the Midmark “Limited Warranty” printed in the Installation and Operation Manual for warranty information. Failure to follow the guidelines listed below will void the warranty and/or render the 318 Oral Surgery Table unsafe for operation.

- In the event of a malfunction, do not attempt to operate the table until necessary repairs have been made.
- Do not attempt to disassemble table, replace malfunctioning or damaged components, or perform adjustments unless you are one of Midmark’s authorized service technicians.
- Do not substitute parts of another manufacturer when replacing inoperative or damaged components. Use only Midmark replacement parts.

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SECTION I
GENERAL INFORMATION

1.1 Scope of Manual

This manual contains detailed troubleshooting, scheduled maintenance, maintenance, and service instructions for 318 Oral Surgery Table. This manual is intended to be used by Midmark's authorized service technicians.

1.2 How to Use Manual

A. Manual Use When Performing Scheduled Maintenance.

(1) Perform inspections and services listed in Scheduled Maintenance Chart (Refer to para 3.1).

(2) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

B. Manual Use When Table Is Malfunctioning And Cause Is Unknown.

(1) Perform an operational test on table (Refer to para 2.1).

(2) Perform troubleshooting procedures listed in Troubleshooting Guide (Refer to para 2.2).

(3) If a component is discovered to be faulty or out of adjustment, replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

C. Manual Use When Damaged Component Is Known.

(1) Replace or adjust component in accordance with maintenance/service instructions (Refer to para 4.1).

1.3 Description Of 318 Oral Surgery Table

A. General Description (See Figure 1-1).

The 318 Oral Surgery Table is an examination table designed specifically for performing general medical examinations and procedures.

The major serviceable components of the table are the motor pump, up functions relief valve (600 PSI), down functions relief valve (400 PSI), up functions shuttle valve, down functions shuttle valve, anti-cavitation solenoid valve, capacitors, control panel with terminal block, back cylinder, foot cylinder, tilt cylinder, base cylinder, base slide assembly, chain assembly, time delay relay and foot switches.

B. Theory of Operation (See Section IV, Figures 5-1 thru 5-2 for wiring diagrams and electrical schematics, and Figures 5-3 and 5-4 for hydraulic flow diagrams.)

When no functions are selected, 115 VAC is supplied to terminals 1 and 2 of all foot switches. There is no path to neutral, however, so no current flows and nothing happens. When the operator selects one of the four up functions (BACK UP, TABLE UP, FOOT UP, or TILT UP) with the foot control, three paths to neutral are created. Current flows from terminal 2 to terminal 4 of switch and then across the motor pump winding T2 to neutral, starting the motor pump pumping. Current also flows from terminal 2 to terminal 4 of switch and then across the coil of the anti-cavitation solenoid valve, energizing the valve and causing it to open. Current also flows from terminal 2 to terminal 3 of switch and then across the coil of the cylinder solenoid valve and the time delay relay, energizing the valve and causing it to open. The time delay relay delays current flow across the coil of the cylinder solenoid valve for 1/10 of a second, causing it to energize 1/10 of a second after the motor pump and anti-cavitation solenoid valve have energized. This allows the motor pump to run and oil pressure to build first, so table top will not drift downward slightly before starting to rise.

When the motor pump starts pumping, suction is created by the rotating pump gears, which allows oil to defeat the reservoir check valve and flow into the pump gears. The pump gears pressurize the oil which flows to the up function shuttle valve. The check ball and shuttle in the up function shuttle valve are pushed to the open position by the oil, allowing oil to flow through the shuttle valve by flowing around the check ball (with the shuttle in the open position, oil is prevented from flowing through the reservoir ports and returning to the reservoir). The oil then flows through the open cylinder solenoid valve at the base of the selected cylinder,

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SECTION I
GENERAL INFORMATION

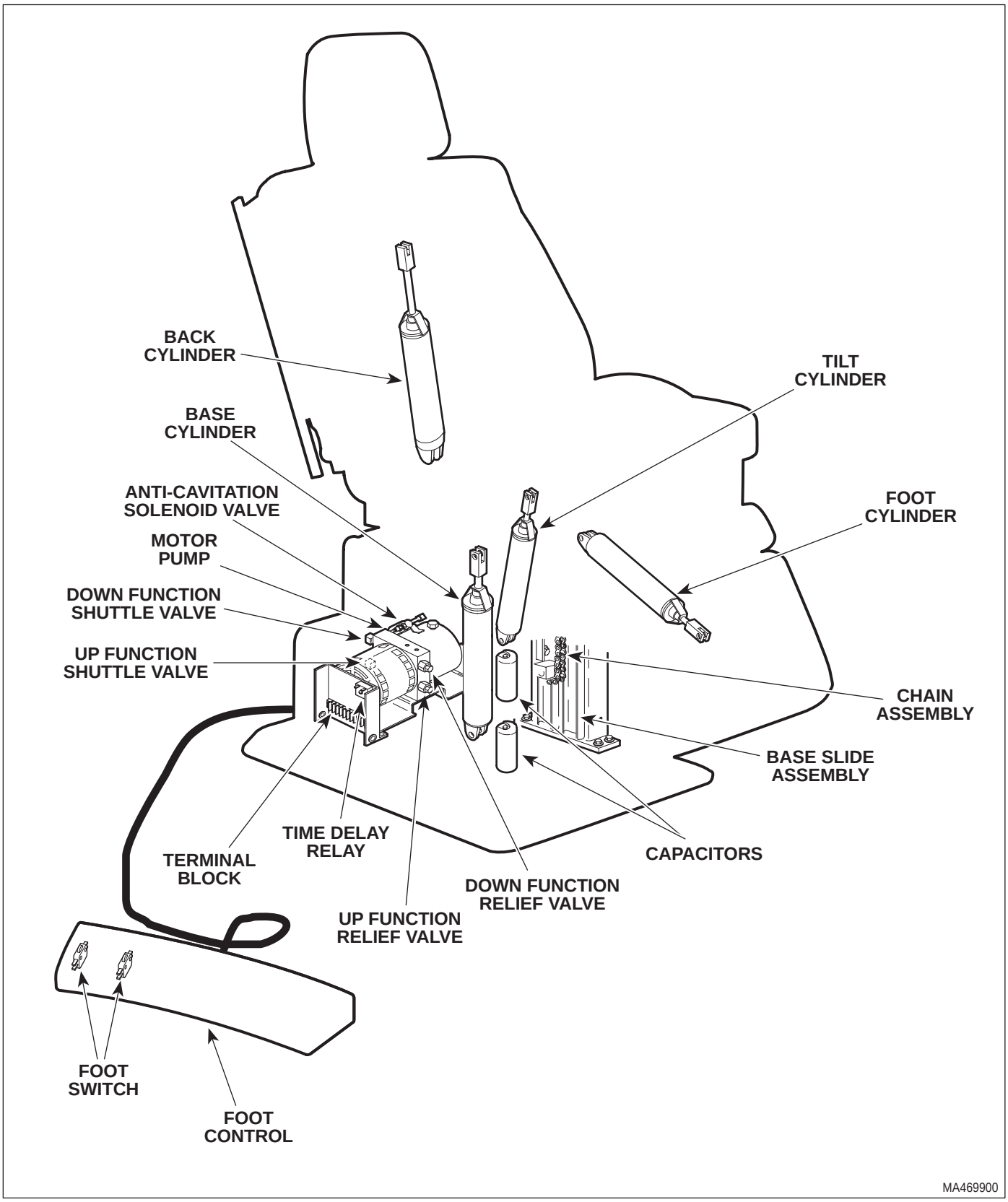

Figure 1-1. Major Components

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extending the cylinder rod. When the cylinder rod extends, oil is forced out of the rod end of the cylinder, through the open anti-cavitation solenoid valve and to the down function shuttle valve. The check ball and the shuttle in the down function shuttle valve are pushed to the closed position by the oil, which prevents oil from flowing through the shuttle valve and into the motor pump, but allows the oil to flow through the newly uncovered reservoir ports into the reservoir. When the cylinder rod reaches the end of its travel, the up function relief valve opens when the pressure reaches 525 - 600 PSI (36.2 - 41.4 BARS) and allows the oil to return to the reservoir. This prevents the motor pump from developing too high of pressures and damaging the hydraulic system components, hoses, or the motor pump itself.

When the operator releases the pedal on the foot control, the path to neutral is opened, causing the motor pump to shut down and the anti-cavitation solenoid valve and the cylinder solenoid valve to de-energize, causing the valves to close.

When no functions are selected, 115 VAC is supplied to terminals 1 and 2 of all foot switches. There is no path to neutral, however, so no current flows and nothing happens. When the operator selects one of the four down functions (BACK DOWN, TABLE DOWN, FOOT DOWN, or TILT DOWN) with the foot control, two paths to neutral are created. Current flows from terminal 2 to terminal 4 of switch and then across the motor pump winding T3 to neutral, starting the motor pump pumping. Current also flows from terminal 2 to terminal 3 of switch and then across the coil of the cylinder solenoid valve and the time delay relay, energizing the valve and causing it to open. The time delay relay delays current flow across the coil of the cylinder solenoid valve for 1/10 of a second, causing it to energize 1/10 of a second after the motor pump and anti-cavitation solenoid valve have energized. This allows the motor pump to run and oil pressure to build before table is operated, so table top will not cavitate.

When the motor pump starts pumping, suction is created by the rotating pump gears, which allows oil to defeat the reservoir check valve and flow into the pump gears. The pump gears pressurize the oil which flows to the down function shuttle valve. The check ball and shuttle in the down function shuttle valve are pushed to the open position by the oil, allowing oil to flow through the shuttle valve by flowing around the check ball (with the shuttle in the open position, oil is prevented from flowing through the reservoir ports and returning to the reservoir). The oil then flows through the open anti-cavitation solenoid valve and into the rod end of the cylinder, causing the cylinder rod to retract. When the cylinder rod retracts, oil is forced out of the base of the cylinder, through the open cylinder solenoid valve to the up function shuttle valve. The check ball and the shuttle in the up function shuttle valve are pushed to the closed position by the oil, which prevents oil from flowing through the shuttle valve and into the motor pump, but allows the oil to flow through the newly uncovered reservoir ports into the reservoir. When the cylinder rod reaches the end of its travel, the down functions relief valve opens when the pressure reaches 250 - 325 PSI (17.2 - 22.4 BARS) and allows the oil to return to the reservoir. This prevents the motor pump from developing too high of pressures and damaging the hydraulic system components, hoses, or the motor pump itself.

When the operator releases the pedal on the foot control, the path to neutral is opened, causing the motor pump to shut down and the cylinder solenoid valve to de-energize, causing the valve to close.

The anti-cavitation solenoid valve is in the hydraulic system to prevent oil from escaping out of the rod end of a cylinder while the table is not being moved. Otherwise, a cylinder rod would be able to extend on its own if upward pressure was placed on that function of the table top by the doctor or patient.

The cylinder solenoid valves are in the hydraulic system to prevent oil from escaping out of the base of the cylinder assemblies. Otherwise, a cylinder assembly could retract on its own, allowing the table top to drift.

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SECTION I
GENERAL INFORMATION

The cylinder solenoid valves are in the hydraulic system to prevent oil from escaping out of the base of the cylinder assemblies. Otherwise, a cylinder assembly could retract on its own, allowing the table top to drift.

1.4 Standard Torque Specifications

The following standard torque specifications in Table 1-1 apply to the various hardware used on the units unless otherwise listed elsewhere in service procedures or parts illustrations:

Table 1-1. Torque Specifications

Hardware Size	Torque Values
#6	11 to 21 inch / lbs. (1.2 to 2.3 N•M)
#8	20 to 30 inch / lbs. (2.2 to 3.3 N•M)
#10	32 to 42 inch / lbs. (3.6 to 4.8 N•M)
1/4"	75 to 85 inch / lbs. (8.5 to 9.6 N•M)
5/16"	18 to 22 foot / lbs. (24.4 to 29.8 N•M)
3/8"	31 to 35 foot / lbs. (42.0 to 47.5 N•M)
1/2"	50 to 60 foot / lbs. (67.8 to 81.4 N•M)

1.5 SPECIFICATIONS

Factual data for the 318 Oral Surgery Table is provided in Table 1-2. Also, see Figure 1-2.

Table 1-2. Specifications

Description	Data
Weight:	
Fixed Base	
Without Shipping Carton	380 lb (176.8 kg)
With Shipping Carton	445 lb (206.7 kg)
Shipping Carton	58 in. "L" x 31 in. "W" x 42 in. "H" (147 cm x 79 cm x 107 cm)
Dimensions (See Figure 1-2):	
Table Top Length	70 in. (177.8 cm)
Table Top Length (headrest extended)	80 in. (203.2 cm)
Table Top Width	27 in. (68.6 cm)
Overall Width	27 in. (68.6 cm)
Table Positioning (Adjustable):	
Standard Base Table Top Height	26 in. to 42 in. (66 cm to 107 cm)
Weight Capacity	325 lb (147.3 kg)
Oil Used In Hydraulic System	light grade medicinal mineral oil
Hydraulic System	
Oil Capacity	Approx. 2.5 quarts (2.4 liters)
Motor Pump Reservoir Capacity	1 quart (.946 liter)
Electrical Requirements:	110 - 120 VAC, 60 HZ, 12 amp, single phase
Power Consumption:	960 WATTS, 8 amps @ 120 VAC
Recommended Circuit:	A separate (dedicated) circuit is recommended for this table. The table *should not* be connected to an electrical circuit with other appliances or equipment unless the circuit is rated for the additional load.
Up Function Relief Valve Setting	Valve opens at 525 to 600 PSI (36.2 to 41.4 BARS)
Down Function Relief Valve Setting	Valve opens at 250 to 325 PSI (17.2 to 22.4 BARS)

1.6 Parts Replacement Ordering

If a part replacement is required, order the part directly from the factory as follows:

NOTE
It is ***important*** that the ***entire Model and Serial Number*** be presented when ordering parts, scheduling a service call, or seeking technical advice.

(1) Refer to Figure 1-3 to determine the location of the model number (A) and serial number (B) of the table and record this data.

(2) Refer to the Parts List to determine the item numbers of the parts, part numbers of the parts, descriptions of the parts, and quantities of parts needed and record this data (Refer to para 6.1).

NOTE
Ask the Purchasing Department of the company that owns the table for this information. Otherwise, this information may be obtained from the dealer that sold the table.

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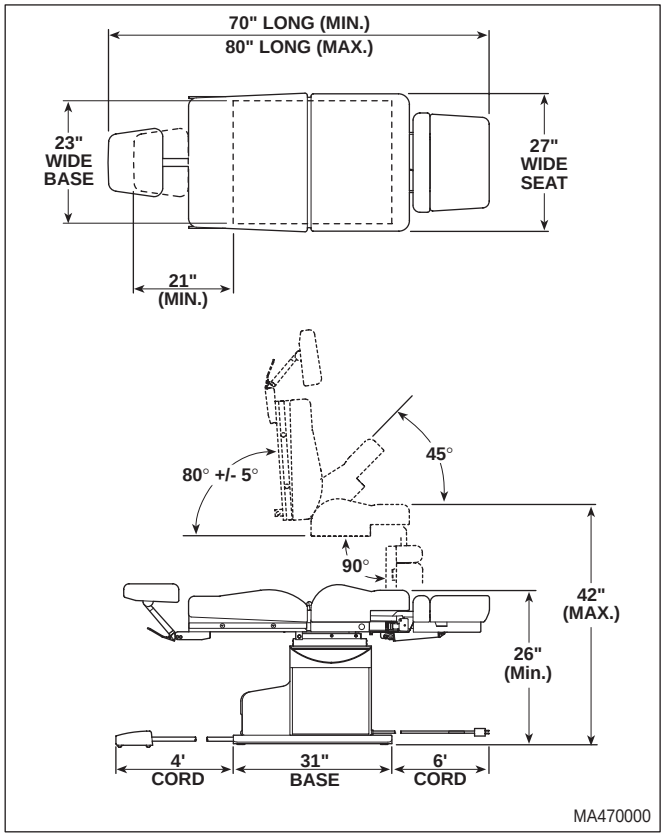

Figure 1-2. Table Dimensions

(3) Determine the installation date of the table and record this data.

(4) Call Midmark with the recorded information and ask for the Medical Products Technical Services Department. See back cover of this manual for the phone number or use the Fax Order Form (See page 7-2 for Fax Order Form).

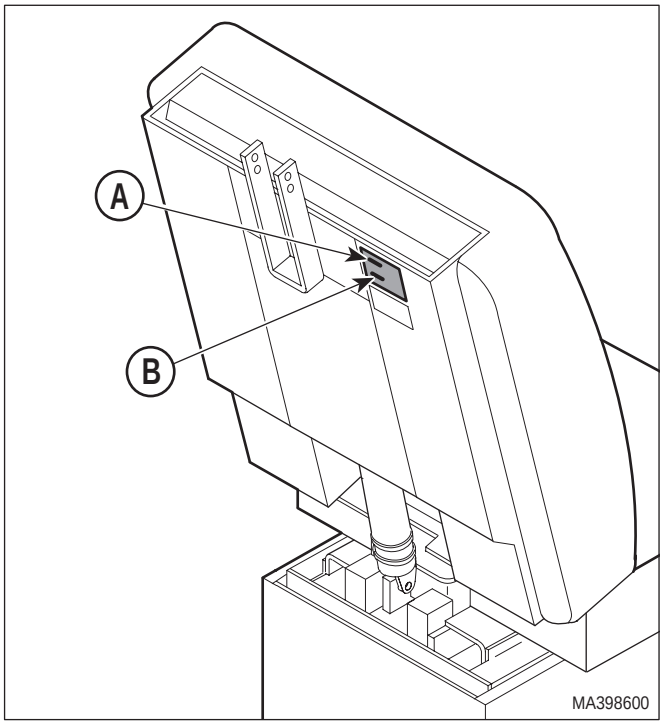

Figure 1-3. Model Number / Serial Number Location

1.7 Special Tools

Table 1-3 lists all of the special tools needed to repair the table, how to obtain the special tools, and the purpose of each special tool.

Table 1-3. Special Tool List

Description of Special Tool	Manufacturer's Name / Address / Phone	Manufacturer's Part Number	Purpose of Special Tool
Multimeter	Commercially Available	Any Type	Used to perform continuity and voltage checks.
Torque Wrench	Commercially Available	Any Type	Used to tighten all hardware to torque values specified.

SECTION I
GENERAL INFORMATION

SECTION II
TESTING AND TROUBLESHOOTING

2.1 Operational Test (See Figure 2-1)

In order to effectively diagnose the malfunction of the table, it may be necessary to perform an operational test as follows:

WARNING
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
The Operational Test, for the most part, only describes what should happen when the table is operated. If the table does something other than described, a problem has been discovered. Refer to the Troubleshooting Guide to determine the cause of the problem and its correction.

(1) Plug the table into a grounded, non-isolated, correctly polarized outlet that has the proper voltage output for the table. See Figure 2-1.

(2) Depress TABLE UP, TABLE DOWN, BACK UP, BACK DOWN, TILT UP, TILT DOWN, FOOT UP, and FOOT DOWN pedals on foot control.

(3) Observe. The table top should move in the direction corresponding to the pedal which is being depressed. Movement should be steady and should not be too slow or too fast.

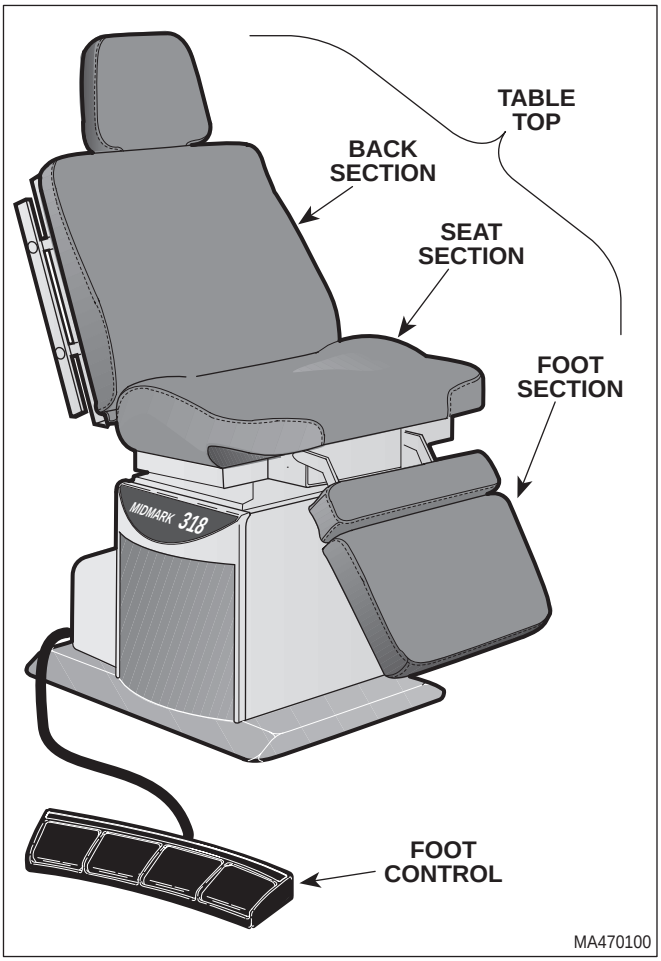

Figure 2-1. Operational Test

2.2 Troubleshooting Procedures

Table 2-1 is a Troubleshooting Guide which is used to determine the cause of the malfunction.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide

Problem	Symptom	Probable Cause	Check	Correction
Table will not operate when any of the eight up or down functions are selected.	When a foot pedal is depressed, motor pump does not run and solenoid cannot be heard being energized (audible click).	Power cord is not plugged into facility wall outlet or, on export models, power cord isn't plugged into connector receptacle on table.	Check to see if power cord is plugged in.	Plug power cord into facility wall outlet and/or connector receptacle on table.
		Facility circuit breaker providing power to table is tripped.	Check to see if facility circuit breaker is tripped. One way of checking this is to plug a lamp into wall outlet that table was plugged into.	If circuit breaker is tripped, determine what caused circuit breaker to trip, correct the problem, and then reset/replace circuit breaker.
		Wire connections loose.	Check all wiring connections from power cord to terminal block and from foot control to terminal block. Perform continuity check on wires. Use multimeter to check for proper voltage levels.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
	When a foot pedal is depressed, motor pump does not run, but solenoid can be heard being energized (audible click).	Capacitor(s) is blown (motor pump may be humming).	Replace suspect capacitor(s) with known working capacitor(s).	Replace capacitor(s). Refer to para 4.18.
		Motor thermal overload switch is activated because motor pump overheated.	Wait 15 to 20 minutes.	Allow motor pump to cool and then try to operate table. If motor pump does not run now, replace motor pump. Refer to para 4.9 or 4.10.
		Motor pump is burned out.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9 or 4.10.
		Wire connections loose.	Check all wiring connections from terminal block to motor pump. Use multimeter to check for proper voltage levels.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Table will not operate when any of the eight up or down functions are selected - Continued.	When a foot pedal is depressed, motor pump runs, but table top does not move.	Time delay relay is malfunctioning.	Use a jumper wire to bypass time delay relay. If table top moves now, time delay relay is malfunctioning.	Replace time delay relay. Refer to para 4.16.
	When a foot pedal is depressed, motor pump runs and solenoid can be heard energizing.	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.3.
	When a foot pedal is depressed, motor pump hums, but does not run.	Capacitor(s) is blown.	Replace suspect capacitor(s) with known working capacitor(s).	Replace capacitor(s). Refer to para 4.17.
		Motor pump is locked up or burned out.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9 or 4.10.
The TABLE UP, BACK UP, TILT UP, and FOOT UP functions do not work, but TABLE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions do.	Motor pump runs when an up function foot pedal is depressed, but table top does not move.	Anti-cavitation solenoid valve is malfunctioning.	Check for slight magnetism on bottom side of anti-cavitation solenoid valve, indicating solenoid is not burned out or replace suspect anti-cavitation solenoid valve with known working anti-cavitation solenoid valve.	Replace anti-cavitation solenoid valve. Refer to para 4.6.
		Wire connections loose.	Check all wiring connections from terminal block to anti-cavitation solenoid valve. Use multimeter to check for proper voltage levels.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Up function shuttle valve is malfunctioning.	Check to see if check ball is loose in up function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace up function shuttle valve. Refer to para 4.4.
		Motor pump is defective.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9 or 4.10.
	Motor pump does not run when an up function foot pedal is depressed, but does when a down function foot pedal is depressed.	Motor pump is defective.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9 or 4.10.
		Wire connection in foot control is loose.	Check all wiring connections in foot control.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
The TABLE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions do not work, but TABLE UP, BACK UP, TILT UP, and FOOT UP functions do.	Motor pump runs when a down function foot pedal is depressed, but table top does not move.	Down function shuttle valve is malfunctioning.	Check to see if check ball is loose in down function shuttle valve or adjacent elbow (check ball should be held in shuttle valve by metal ring).	Replace down function shuttle valve. Refer to para 4.5.
		Motor pump is defective.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9 or 4.10.
	Motor pump does not run when a down function foot pedal is depressed, but runs when an up function is pressed.	Motor pump is defective.	Replace suspect motor pump with known working motor pump.	Replace motor pump. Refer to para 4.9 or 4.10.
		Wire connection in foot control is loose.	Check all wiring connections in foot control.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
TABLE UP function works, but TABLE DOWN function does not or TABLE DOWN function works but TABLE UP function does not. All other functions work.	Motor pump does not run and base cylinder solenoid valve does not energize.	TABLE UP or TABLE DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.
	Motor pump runs but base cylinder solenoid valve does not energize or vice versa.	Wire connection to foot switch is loose.	Check all wiring connections on suspect foot switch.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		TABLE UP or TABLE DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.
BACK UP function works, but BACK DOWN function does not or BACK DOWN function works but BACK UP function does not. All other functions work.	Motor pump does not run and back cylinder solenoid valve does not energize.	BACK UP or BACK DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.
	Motor pump runs but back cylinder solenoid valve does not energize or vice versa.	Wire connection to foot switch is loose.	Check all wiring connections on suspect foot switch.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		BACK UP or BACK DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
TILT UP function works, but TILT DOWN function does not or TILT DOWN function works but TILT UP function does not. All other functions work.	Motor pump does not run and tilt cylinder solenoid valve does not energize.	TILT UP or TILT DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.
	Motor pump runs but tilt cylinder solenoid valve does not energize or vice versa.	Wire connection to foot switch is loose.	Check all wiring connections on suspect foot switch.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		TILT UP or TILT DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.
FOOT UP function works, but FOOT DOWN function does not or FOOT DOWN function works but FOOT UP function does not. All other functions work.	Motor pump does not run and foot cylinder solenoid valve does not energize.	FOOT UP or FOOT DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.
	Motor pump runs but foot cylinder solenoid valve does not energize or vice versa.	Wire connection to foot switch is loose.	Check all wiring connections on suspect foot switch.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		FOOT UP or FOOT DOWN foot switch is malfunctioning.	Perform a continuity check on suspect foot switch in ON and OFF positions or replace suspect foot switch with known working foot switch.	Replace foot switch. Refer to para 4.24.
TABLE UP and TABLE DOWN functions do not work. All other functions work.	Motor pump runs when TABLE UP or TABLE DOWN foot pedal is depressed, but table top does not move.	Base cylinder solenoid valve is malfunctioning.	Check to see if base cylinder solenoid valve energizes (audible click) when foot pedal is depressed.	Replace base cylinder. Refer to para 4.14.
		White wire running from terminal 3 of foot switch to terminal block is broken or disconnected.	Check continuity of wire and connections.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Wire running from terminal block to base cylinder solenoid valve is broken or disconnected.	Check continuity of wire and connections.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.

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SECTION II
TESTING AND TROUBLESHOOTING

Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
BACK UP and BACK DOWN functions do not work. All other functions work.	Motor pump runs when BACK UP or BACK DOWN foot pedal is depressed, but table does not move.	Back cylinder solenoid valve is malfunctioning.	Check to see if back cylinder solenoid valve energizes (audible click) when foot pedal is depressed.	Replace back cylinder. Refer to para 4.12.
		White/black wire running from terminal 3 of foot switch to terminal block is broken or disconnected.	Check continuity of wire and connections.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Wire running from terminal block to back cylinder solenoid valve is broken or disconnected.	Check continuity of wire and connections.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
TILT UP and TILT DOWN functions do not work. All other functions work.	Motor pump runs when TILT UP or TILT DOWN foot pedal is depressed, but table does not move.	Tilt cylinder solenoid valve is malfunctioning.	Check to see if tilt cylinder solenoid valve energizes (audible click) when foot pedal is depressed.	Replace tilt cylinder. Refer to para 4.13.
		Orange wire running from terminal 3 of foot switch to terminal block is broken or disconnected.	Check continuity of wire and connections.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
		Wire running from terminal block to tilt cylinder solenoid valve is broken or disconnected.	Check continuity of wire and connections.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.
FOOT UP and FOOT DOWN functions do not work. All other functions work.	Motor pump runs when FOOT UP or FOOT DOWN foot pedal is depressed, but foot section does not move.	Foot cylinder solenoid valve is malfunctioning.	Check to see if foot cylinder solenoid valve energizes (audible click) when foot pedal is depressed.	Replace foot cylinder. Refer to para 4.15.
		Red/black wire running from terminal 3 of foot switch to terminal block is broken or disconnected.	Check continuity of wire and connections.	Clean any dirty connections. Tighten any loose connections. Replace any damaged connections.

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Table 2-1. Troubleshooting Guide - Continued

Problem	Symptom	Probable Cause	Check	Correction
Any of the four functions drift by themselves.	Table functions properly otherwise.	A cylinder solenoid valve is stuck in open position or is malfunctioning.	Try to flush foreign objects out of cylinder solenoid valve by running oil through cylinder in both directions ten times.	Replace malfunctioning cylinder assembly.
		A foot switch is malfunctioning and holding cylinder solenoid valve in the open position.	Use multimeter to check for voltage at terminal 3 of suspect foot switch (no voltage should be present when foot switch is in OFF position).	Replace foot switch. Refer to para 4.24
Back section of table top may be lifted by hand or tilt function may drift by itself.	Table functions properly otherwise.	Anti-cavitation solenoid valve is malfunctioning.	Replace suspect anti-cavitation solenoid valve with known working anti-cavitation solenoid valve.	Replace anti-cavitation solenoid valve. Refer to para 4.6.
Table moves fine for light patient, but will not move or moves slowly for very heavy patient.	Occurs for both the up and down functions.	Hydraulic system is low on mineral oil.	Check oil level in reservoir.	If necessary, add oil to reservoir. Refer to para 4.3.
		Up functions and down functions relief valves are malfunctioning.	Replace suspect relief valves with known working relief valves.	Replace up functions and down functions relief valves. Refer to paras 4.7 and 4.8.
	Occurs for up functions only.	Up functions relief valve is malfunctioning.	Replace suspect up functions relief valve with known working relief valve.	Replace up functions relief valve. Refer to para 4.7.
	Occurs for down functions only.	Down function relief valve is malfunctioning.	Replace suspect down functions relief valve with known working relief valve.	Replace down functions relief valve. Refer to para 4.8.
Excessive sideways play of table top.	Table is not stable and can be moved from side to side.	Chain assemblies are loose.	Check tension of chain assemblies.	Adjust tension of chain assemblies. Refer to para 4.19.
		Base slide assembly is worn or deformed.	Check condition of base slide assembly.	Replace base slide assembly. Refer to para 4.20.

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SECTION II
TESTING AND TROUBLESHOOTING

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SECTION III
SCHEDULED MAINTENANCE

3.1 Scheduled Maintenance

Table 3-1 is a Scheduled Maintenance Chart which lists the inspections and services that should be performed periodically on the table. These inspections and services should be performed as often as indicated in the chart.

Table 3-1. Scheduled Maintenance Chart

Interval	Inspection or Service	What to Do
Semi-annually	Obvious damage	Visually check condition of table for obvious damage such as: cracks in components, missing components, dents in components, leaking oil, or any other visible damage which would cause table to be unsafe to operate or would compromise its performance. Repair table as necessary.
	Fasteners/hardware	Check table for missing or loose fasteners/hardware. Replace any missing hardware and tighten any loose hardware as necessary.
	Warning and instructional decals	Check for missing or illegible decals. Replace decals as necessary.
	Pivot points/moving parts/accessories	Lubricate all exposed pivot points, moving parts, and accessories with silicone based lubricant.
	Hydraulic hoses and fittings	Check all hydraulic hoses and fittings for leaks. Replace any components causing leaks. Replace any hoses which have kinks, cuts, holes, or other damage.
	Foot control	Check that foot control works correctly. Make sure foot pedals contact switch properly.
	Hydraulic functions	Check that all four functions operate properly. If not, refer to the Troubleshooting Guide to determine the cause of the problem. Clean or replace components as necessary.
	Cylinders	Inspect all cylinders for signs of internal leaking or for weak operation. Replace cylinders as necessary.
	Drift in table	Check each cylinder to see if it drifts. Replace cylinder if necessary.
	Oil level	Check oil level in motor pump. Add oil to motor pump if necessary. Refer to para 4.3.
	Headrest Assembly	Check headrest for proper adjustment. If headrest does not have enough holding power, adjust headrest handles. Refer to para 4.21.
	Excessive sideways play of table top	Check that table top does not have excessive side play. Adjust chain assembly if necessary. Refer to para 4.19.
	Anti-cavitation solenoid valve	Check to see if back section may be lifted by hand or if the tilt function drifts by itself. If so, replace anti-cavitation solenoid valve. Refer to para 4.6.
	Upholstery	Check all upholstery for rips, tears, or excessive wear. Replace cushions as necessary. Refer to para 4.25.
	Accessories	Check that all accessories have all of their components and that they function properly. If necessary, repair or replace the accessory.
	Operational Test	Perform an Operational Test to determine if the table is operating within its specifications (Refer to para 2.1). Replace or adjust any malfunctioning components.

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SECTION III
SCHEDULED MAINTENANCE

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SECTION IV
MAINTENANCE / SERVICE INSTRUCTIONS

4.1 Introduction

WARNING
Refer to the Operator Manual for complete instructions on operating the table. Failure to do so could result in personal injury.

NOTE
Perform an operational test on the table after the repair is completed to confirm the repair was properly made and that *all* malfunctions were repaired.

The following paragraphs contain removal, installation, repair, and adjustment procedures for the table.

4.2 Motor Cover Assembly Removal / Installation

A. Removal

WARNING
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove six screws (1, Figure 4-1) and motor cover assembly (2) from back outer shroud (3).

B. Installation

(1) Install motor cover assembly (2) against back outer shroud (3) and secure with six screws (1), making sure top edge of motor cover assembly is inserted behind lip (A) of back outer shroud.

(2) Plug table power cord into outlet.

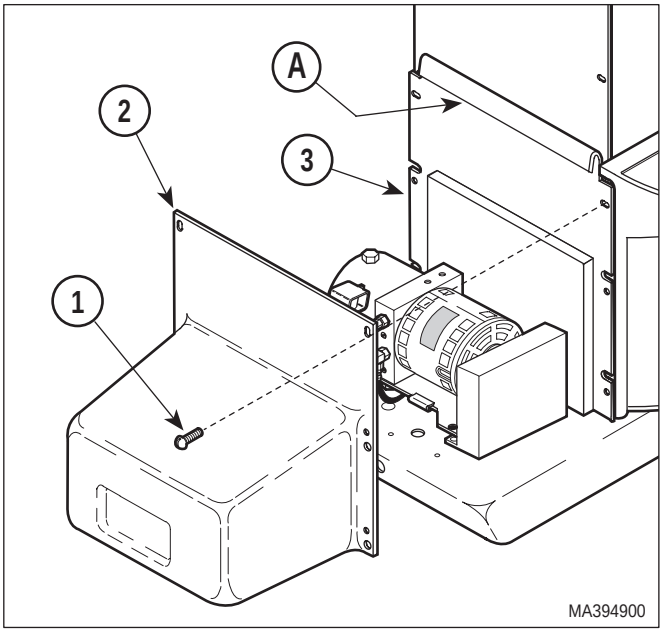

Figure 4-1. Motor Cover Assembly Removal / Installation

4.3 Checking / Adding Oil To Motor Pump

A. Checking / Adding Oil

(1) Move the BASE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove filler cap (1, Figure 4-2) from motor pump (2).

(4) Remove screw (3) and gasket (4) from motor pump (2).

(5) Check oil level. If oil level in reservoir is not even with oil level check hole, oil must be added.

(6) Place a rag under oil level check hole (A).

EQUIPMENT ALERT
Hydraulic system is designed for use with light grade mineral oil only. Failure to comply could result in hydraulic system failure.

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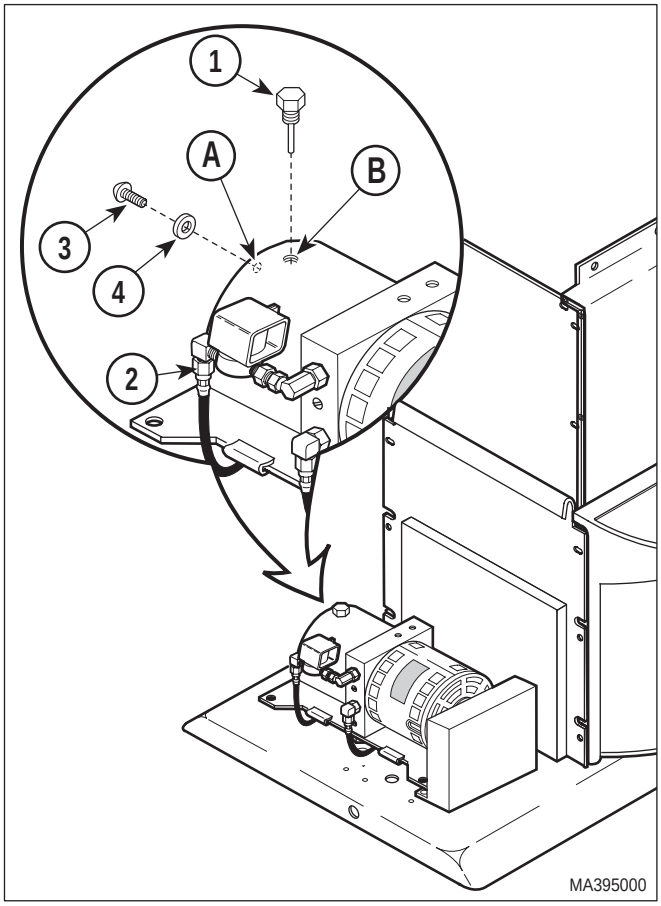

Figure 4-2. Checking / Adding Oil To Motor Pump

(7) Add oil to fill hole (B) until oil starts to run out of oil level check hole (A).

(8) Install gasket (4) and screw (3) on motor pump (2).

(9) Install filler cap (1) on motor pump (2).

(10) Move each function to its up and down limit several times. Then repeat steps 1 thru 9.

(11) Install motor cover assembly (Refer to para 4.2).

(12) Dispose of used oil in accordance with local regulations.

4.4 Up Functions Shuttle Valve Removal / Installation

A. Removal

WARNING
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove motor cover (Refer to para 4.2).

NOTE
The up functions shuttle valve is lower than the oil level in the motor pump reservoir and oil will flow out of the up functions shuttle valve once the hose assembly is disconnected.

(3) Place drain pan (A) under up functions shuttle valve (1, Figure 4-3).

(4) Disconnect hose assembly (2) from elbow (B) of up functions shuttle valve (1).

(5) Remove up functions shuttle valve (1) from motor pump (3).

B. Installation

(1) Coat two o-rings (C) on up functions shuttle valve (1) with mineral oil or vaseline.

(2) Install up functions shuttle valve (1) in motor pump (3).

(3) Connect hose assembly (2) to elbow (B) of up functions shuttle valve (1).

(4) If necessary, add oil to motor pump (Refer to para 4.3).

(5) Install motor cover assembly (Refer to para 4.2).

(6) Plug table power cord into outlet.

(7) Dispose of used oil in accordance with local regulations.

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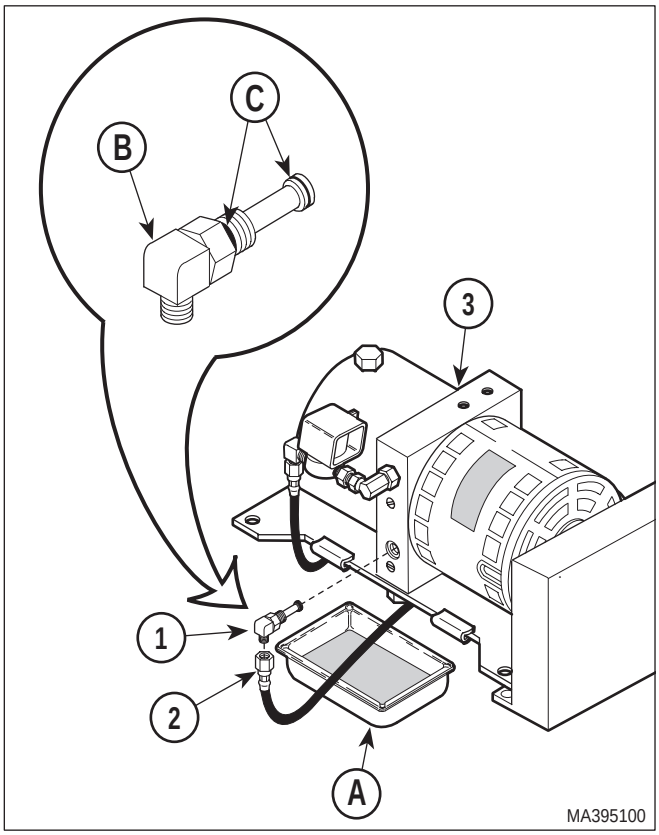

Figure 4-3. Up Functions Shuttle Valve Removal / Installation

4.5 Down Functions Shuttle Valve Removal / Installation

A. Removal

WARNING
Always disconnect the power cord from the outlet before removing any of the table's covers/shrouds or making any repairs to prevent the possibility of electrical shock. Failure to comply with these instructions could result in severe personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

NOTE
The down functions shuttle valve is slightly lower than the oil level in the motor pump reservoir and oil will flow out of the down functions shuttle valve once the hose assembly is disconnected.

(3) Place rags or drain pan (A) under down functions shuttle valve (1, Figure 4-4).

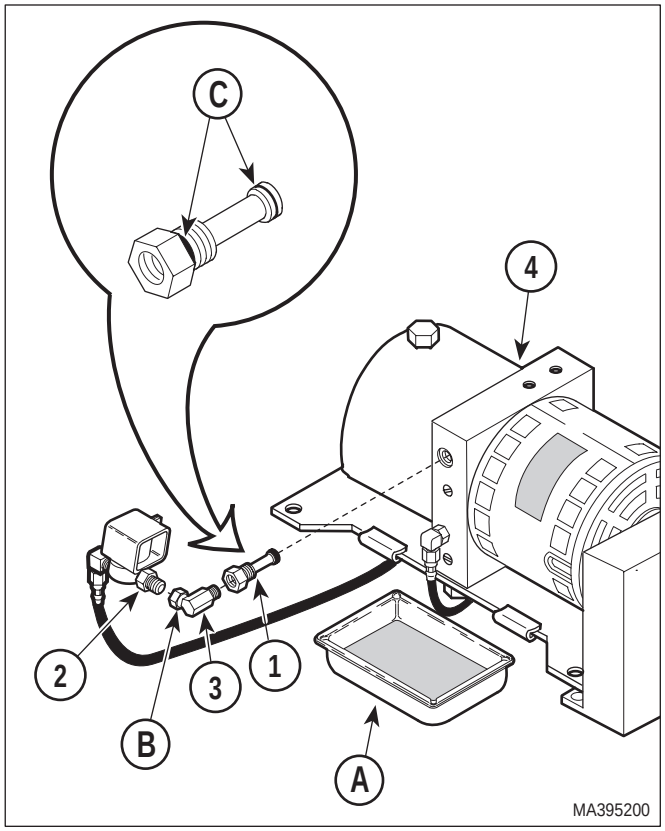

Figure 4-4. Down Functions Shuttle Valve Removal / Installation

(4) Using a wrench to hold male connector (2) stationary, loosen jam nut (B) of elbow (3). Disconnect elbow from male connector.

(5) Remove elbow (3) from down function shuttle valve (1).

(6) Remove down functions shuttle valve (1) from motor pump (4).

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B. Installation

NOTE
The down functions shuttle valve is sent from factory with an elbow installed on it. Remove it per step 1.

(1) Remove elbow from down function shuttle valve (1). Discard elbow.

(2) Coat two o-rings on down functions shuttle valve (1) with mineral oil or vaseline.

(3) Install down functions shuttle valve (1) in motor pump (4).

(4) Coat threads of male connector (2) and elbow (3) with pipe thread tape or sealant.

(5) Install elbow (3) on down functions shuttle valve (1).

(6) Connect elbow (3) to male connector (2) and secure by tightening jam nut.

(7) If necessary, add oil to motor pump (Refer to para 4.3).

(8) Install motor cover assembly (Refer to para 4.2).

(9) Plug table power cord into outlet.

(10) Dispose of used oil in accordance with local regulations.

4.6 Anti-Cavitation Solenoid Valve Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove two screws (1, Figure 4-5) and control cover (2) from control panel (3).

(4) Loosen two terminal screws (A); then tag and disconnect anti-cavitation solenoid valve wires (4) from terminal block (5).

(5) Pull anti-cavitation solenoid valve wires (4) out thru wire hole (B).

(6) Disconnect hose assembly (6) from elbow (7).

(7) Using a wrench to hold male connector (8) stationary, loosen jam nut (C) of elbow (9). Disconnect male connector (8) from elbow (9).

(8) Remove elbow (7) and male connector (8) from anti-cavitation solenoid valve (10).

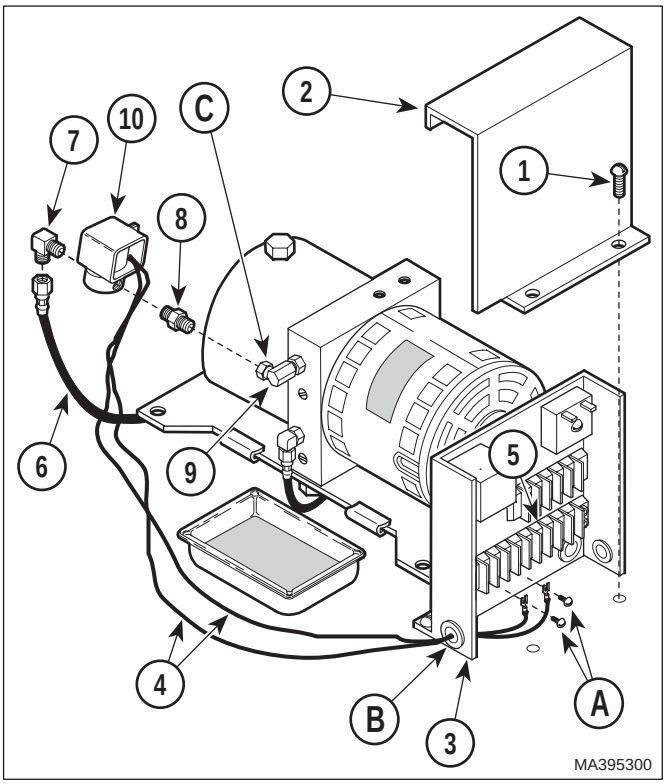

Figure 4-5. Anti-cavitation Solenoid Valve Removal / Installation

B. Installation

EQUIPMENT ALERT
Do not coat last two threads of elbow and male connector with teflon tape or sealant. Otherwise, little particles of the tape / sealant can break loose and can contaminate hydraulic system.

(1) Coat threads of elbow (7) and male connector (8) with pipe thread tape or sealant.

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(2) Install elbow (7) and male connector (8) on anti-cavitation solenoid valve (10).

(3) Connect hose assembly (6) to elbow (7).

(4) Coat threads of male connector (8) with pipe thread tape or sealant.

(5) Connect elbow (9) to male connector (8) and secure by tightening jam nut (C).

(6) Feed two anti-cavitation solenoid valve wires (4) thru wire hole (B).

(7) Connect two anti-cavitation solenoid valve wires (4) to terminal block (5) and secure by tightening two terminal screws (A).

(8) Install control cover (2) on control panel (3) and secure with two screws (1).

(9) Install motor cover assembly (Refer to para 4.2).

(10) Plug table power cord into outlet.

4.7 Up Functions Relief Valve Removal / Installation

A. Removal

(1) If possible, raise TABLE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove motor cover assembly (Refer to para 4.2).

(4) Remove four screws (1, Figure 4-6) and back outer shroud (2) from left and right hand outer shrouds (3).

NOTE
The back inner shroud must be removed if it will obstruct removal of up functions relief valve.

(5) If necessary, remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

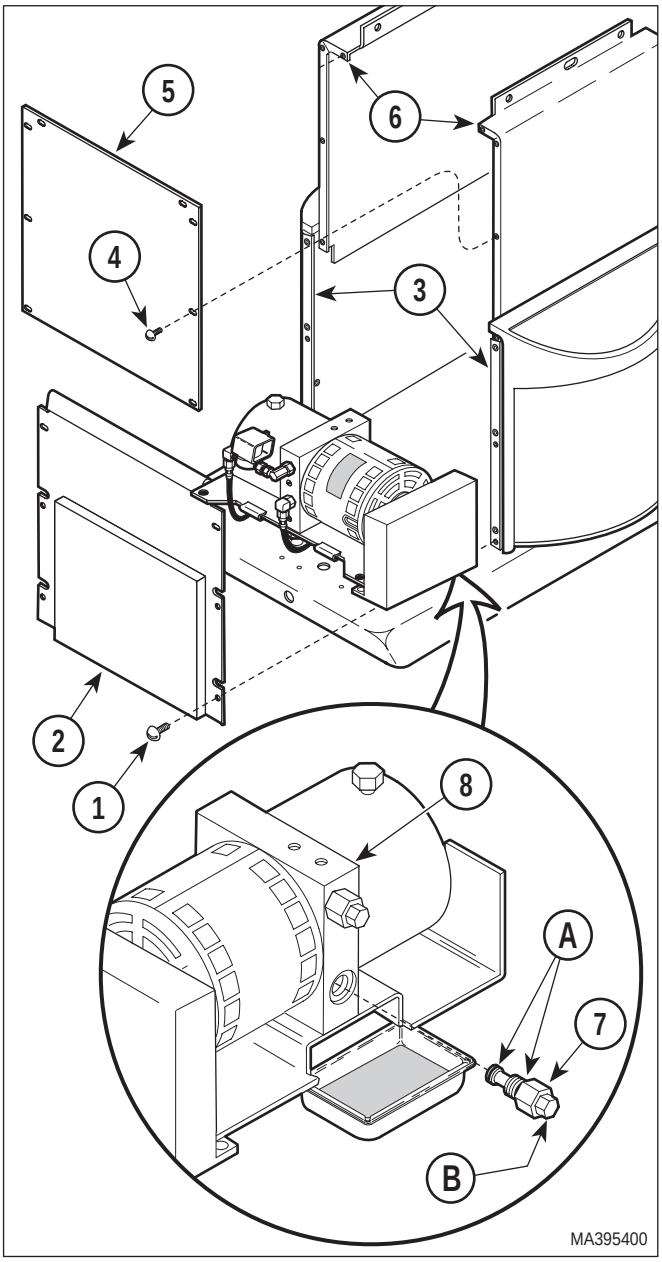

Figure 4-6. Up Functions Relief Valve Removal / Installation

NOTE
Oil will flow out of relief valve port when up functions relief valve is removed. Either have the new up functions relief valve ready to install or place a drain pan under relief valve port to catch oil.

(6) Remove up functions relief valve (7) from motor pump (8).

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B. Installation

(1) Coat two o-rings (A) on up functions relief valve (7) with mineral oil or vaseline.

EQUIPMENT ALERT
Make sure relief valve (7) has "600" stamped on its hex head (B); it *must not* be stamped "L2". Failure to install proper relief valve will result in faulty table performance.

(2) Install up functions relief valve (7) in motor pump (8).

(3) If removed, install back inner shroud (5) on left and right inner shrouds (6) and secure with eight screws (4).

(4) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(5) If necessary, add oil to motor pump (Refer to para 4.3).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

4.8 Down Functions Relief Valve Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-7) and back outer shroud (2) from left and right hand outer shrouds (3).

NOTE
The back inner shroud must be removed if it will obstruct removal of up functions relief valve.

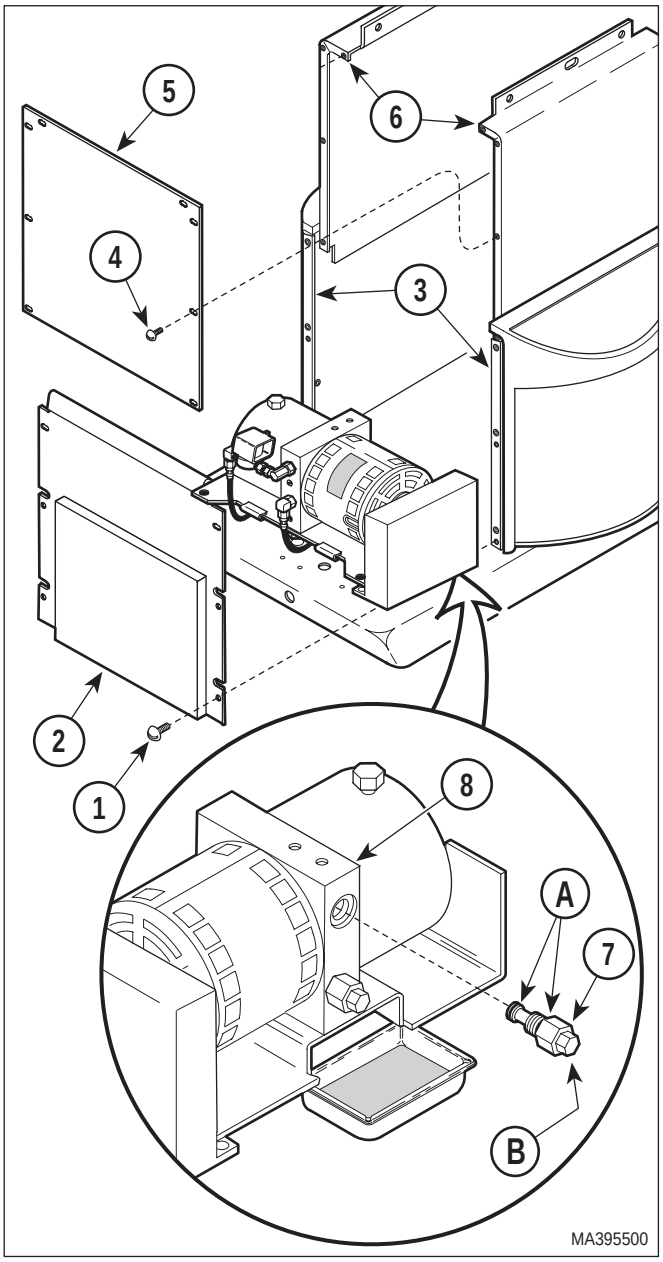

Figure 4-7. Down Functions Relief Valve Removal / Installation

(4) If necessary, remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

NOTE
Oil will flow out of relief valve port when down functions relief valve is removed. Either have the new down functions relief valve ready to install or place a drain pan under relief valve port to catch oil.

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(5) Remove down functions relief valve (7) from motor pump (8).

B. Installation

(1) Coat two o-rings (A) on down functions relief valve (7) with mineral oil or vaseline.

EQUIPMENT ALERT
Make sure relief valve (7) has "L2" stamped on its hex head (B); it *must not* be stamped "600". Failure to install proper relief valve will result in faulty table performance.

(2) Install down functions relief valve (7) in motor pump (8).

(3) If removed, install back inner shroud (5) on left and right inner shrouds (6) and secure with eight screws (4).

(4) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(5) If necessary, add oil to motor pump (Refer to para 4.3).

(6) Install motor cover assembly (Refer to para 4.2).

(7) Plug table power cord into receptacle.

(8) Dispose of used oil in accordance with local regulations.

4.9 Motor Pump Assembly - Complete Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-8) and back outer shroud (2) from left and right hand outer shrouds (3).

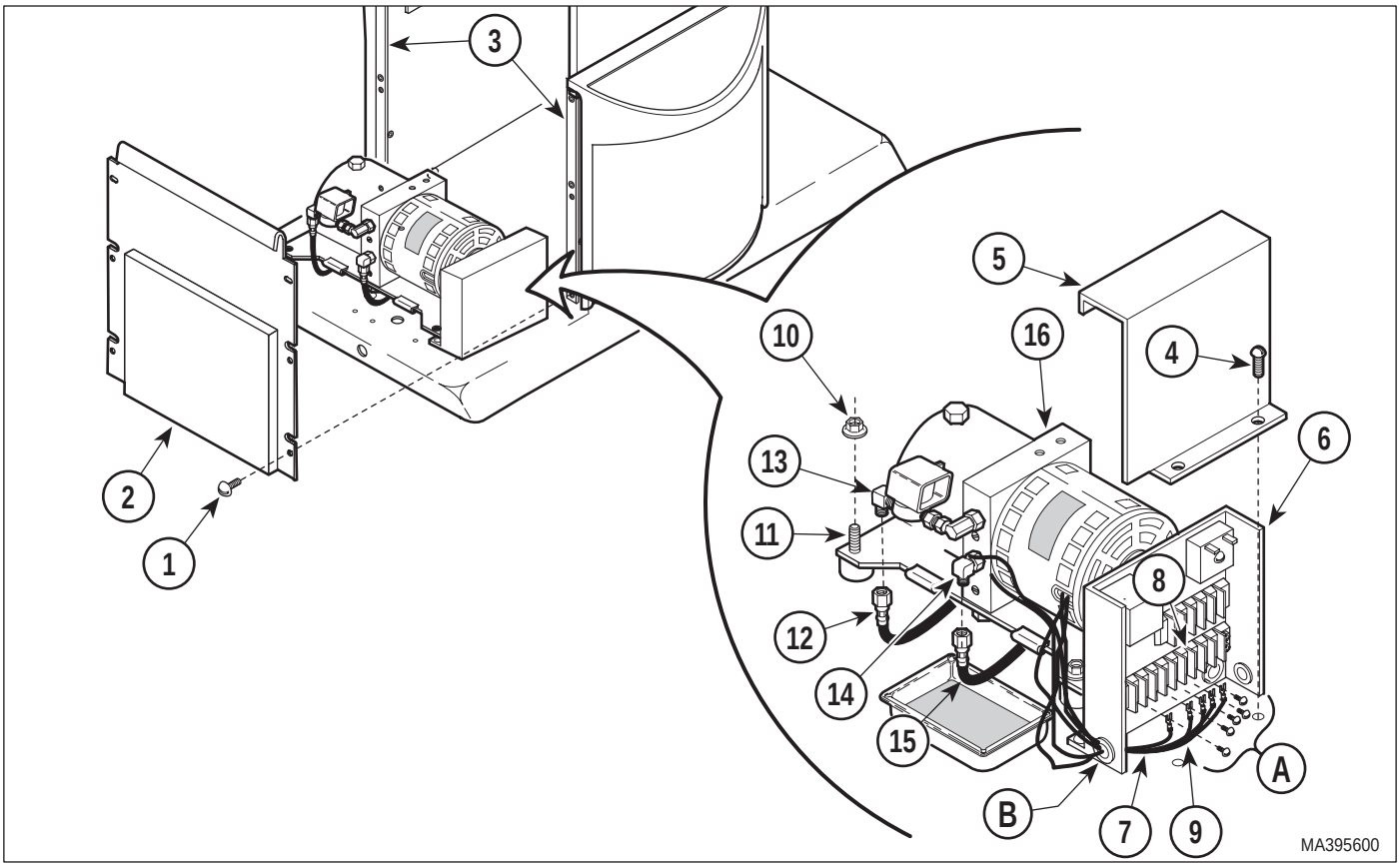

Figure 4-8. Motor Pump Assembly - Complete Removal / Installation

(4) Remove two screws (4) and control cover (5) from control panel (6).

(5) Loosen three terminal screws; then tag and disconnect three motor pump wires (7) from terminal block (8).

(6) Pull motor pump wires (7) out thru wire hole.

(7) Loosen two terminal screws; then tag and disconnect anti-cavitation solenoid valve wires (9) from terminal block (8).

(8) Pull anti-cavitation solenoid valve wires (9) out thru wire hole.

(9) Remove four nuts (10) from four motor mounts (11).

(10) Disconnect hose assembly (12) from male elbow (13).

(11) Place a drain pan under elbow (14).

(12) Disconnect hose assembly (15) from elbow (14). Allow oil to drain into drain pan.

(13) Remove motor pump assembly (16) from four motor mounts (11).

B. Installation

(1) Install motor pump assembly (16) on four motor mounts (11) and secure with four nuts (10).

(2) Connect hose assembly (15) to elbow (14).

(3) Connect hose assembly (12) to male elbow (13).

(4) Feed two anti-cavitation solenoid valve wires (9) thru wire hole.

(5) Connect two anti-cavitation solenoid valve wires (9) to terminal block (8) and secure by tightening two terminal screws.

(6) Feed three motor pump wires (7) thru wire hole.

(7) Connect three motor pump wires (7) to terminal block (8) and secure by tightening three terminal screws.

(8) Install control cover (5) on control panel (6) and secure with two screws (4).

(9) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(10) Add oil to motor pump (Refer to para 4.3).

(11) Install motor cover assembly (Refer to para 4.2).

(12) Plug table power cord into outlet.

(13) Dispose of used oil in accordance with local regulations.

4.10 Motor Pump Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor pump assembly - Complete (Refer to para 4.9).

(3) Remove filler cap (A) and drain any remaining oil into drain pan (See Figure 4-9).

(4) Using a wrench to hold male connector (1, Figure 4-9) stationary, loosen jam nut (B) of elbow (2). Disconnect male connector/anti-cavitation solenoid valve (C) from elbow.

(5) Remove down functions shuttle valve (3) and up functions shuttle valve (4) from motor pump (5).

(6) Remove two screws (6), lockwashers (7), and motor base (8) from motor pump (5).

B. Installation

(1) Install motor base (8) on motor pump (5) and secure with two lockwashers (7) and screws (6).

(2) Install up functions shuttle valve (4) and down functions shuttle valve (3) on motor pump (5).

(3) Coat threads of male connector (1) with pipe thread tape or sealant.

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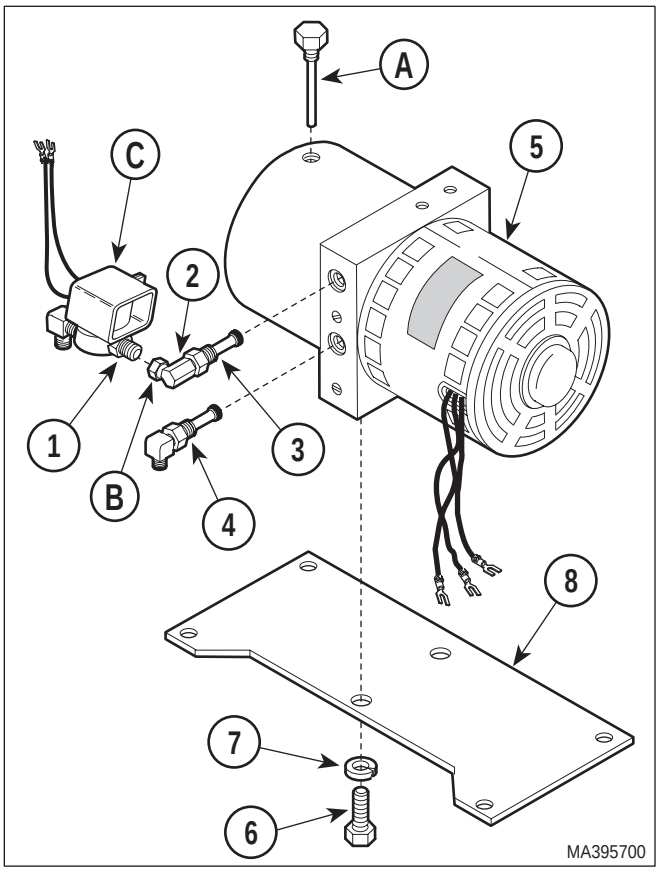

Figure 4-9. Motor Pump Removal / Installation

(4) Connect male connector (1)/anti-cavitation solenoid valve (C) to elbow (2) and secure by tightening jam nut (B).

(5) Install motor pump assembly (Refer to para 4.9).

(6) Plug table power cord into outlet.

4.11 Motor Shaft Seal Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor pump (Refer to para 4.10).

NOTE
Reservoir will come off hard. Use a screwdriver to pry reservoir off of manifold block, but make sure not to damage o-ring.

(3) Remove four screws (1, Figure 4-10) and reservoir (2) from manifold block (3).

(4) Remove magnet (4) from strainer (5).

(5) Remove four screws (6) and pump housing (7) from manifold block (3).

(6) Remove pump gear (8) and woodruff key (9) from shaft of rotor assembly (10).

(7) Remove four screws (11) and motor housing (12) from manifold block (3).

(8) Push rotor assembly (10) inward toward manifold block (3); then remove retaining ring (13) from end of rotor assembly shaft (A).

(9) Remove rotor assembly (10) from manifold block (3).

(10) Using a screwdriver, pry motor shaft seal (14) out of manifold block (3).

B. Installation

(1) Clean all metal shavings off of all components.

(2) Coat motor shaft seal (14) with vaseline or mineral oil.

EQUIPMENT ALERT
Do not allow motor shaft seal to become cocked during installation or it will become impossible to install without damaging it.

(3) Using a hammer and 3/4 inch socket, install motor shaft seal (14) in manifold block (3).

(4) Slide shaft of rotor assembly (10) thru manifold block (3) and secure in place by installing retaining ring (13) on end of rotor assembly shaft.

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SECTION IV
MAINTENANCE / SERVICE

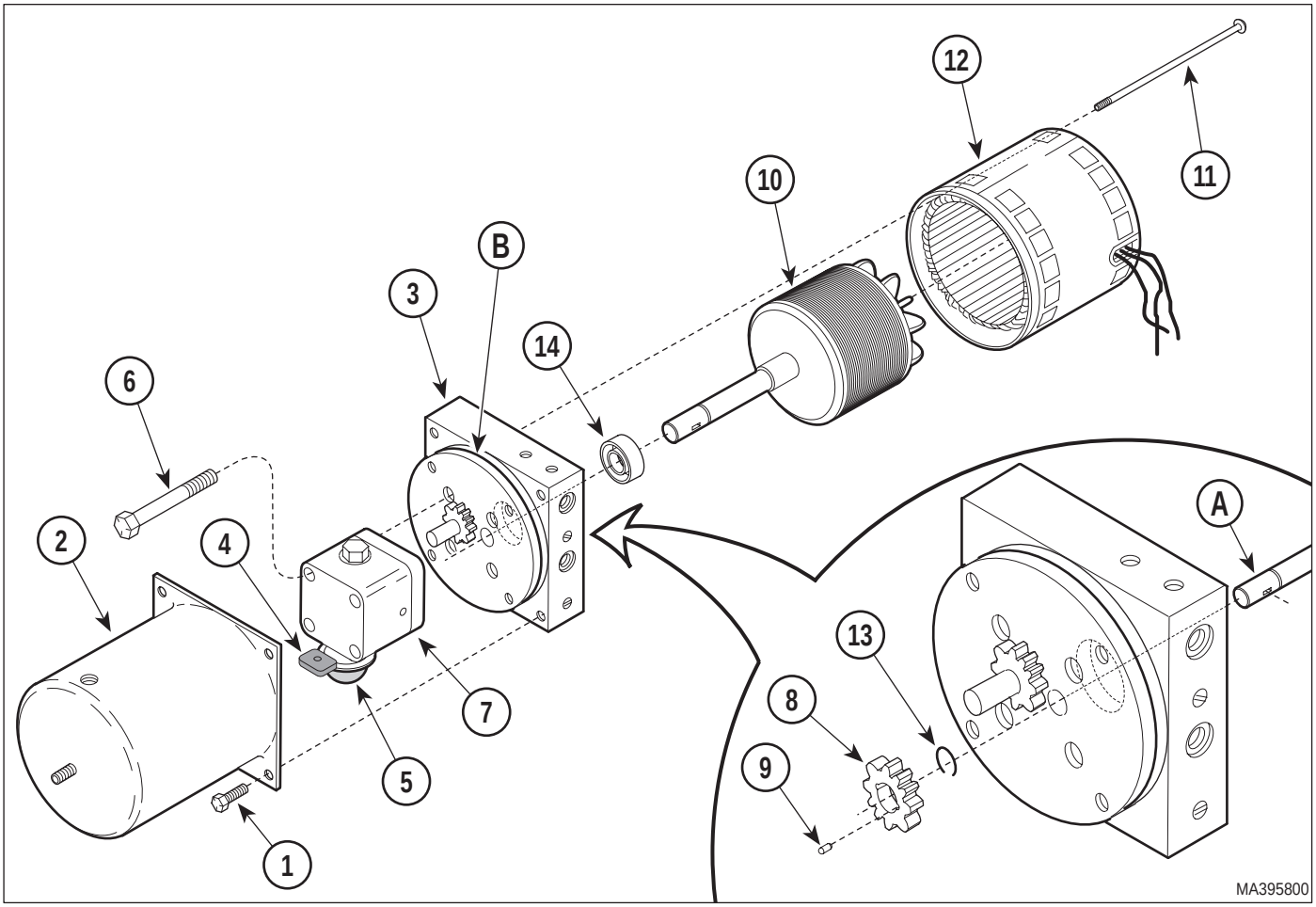

Figure 4-10. Motor Shaft Seal Removal / Installation

(5) Install motor housing (12) on manifold block (3) and secure with four screws (11).

(6) Install woodruff key (9) and pump gear (8) on shaft of rotor assembly (10).

(7) Install pump housing (7) on manifold block (3) and secure with four screws (6).

(8) Install magnet (4) on strainer (5).

(9) Make sure o-ring (B) on manifold block is present and clean. Coat o-ring with mineral oil.

NOTE
Strainer may get in way when reservoir is being installed. If so, rotate strainer out of the way.

(10) Install reservoir (2) on manifold block (3) and secure with four screws (1).

(11) Install motor pump (Refer to para 4.10).

(12) Plug table power cord into outlet.

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4.12 Back Cylinder Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove upholstered seat section (Refer to steps 6 thru 8 of para 4.25).

(3) Remove four screws (1, Figure 4-11) and front outer shroud (2) from left and right hand outer shrouds (3).

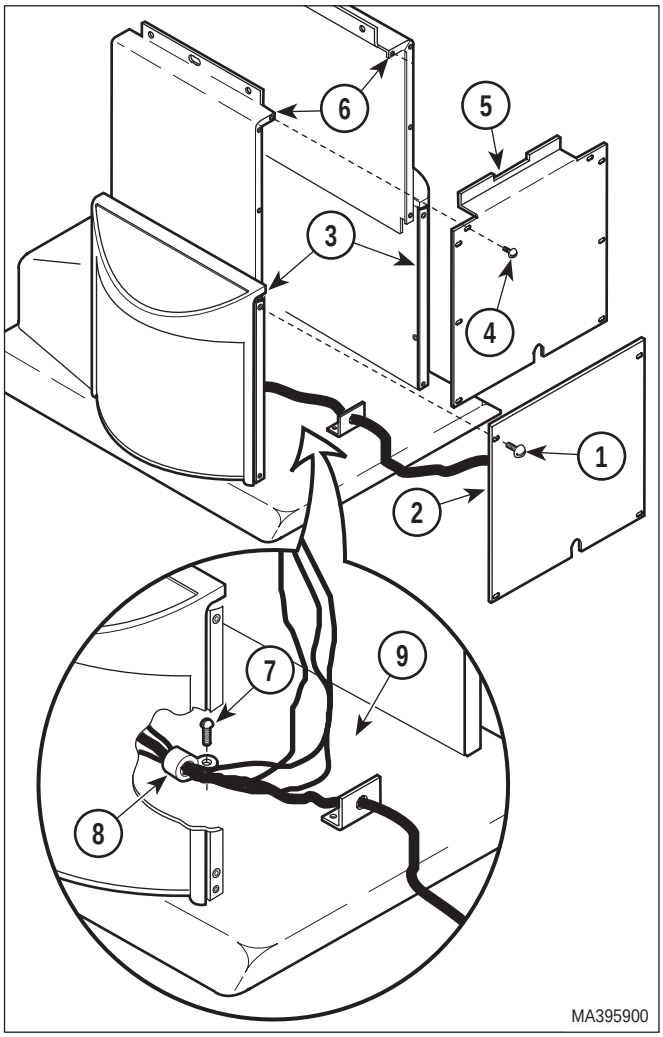

Figure 4-11. Table Access

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Remove screw (7) and wire clip (8) securing wires and hoses to base weldment (9).

(6) Remove motor cover assembly (Refer to para 4.2).

(7) Remove two screws (1, Figure 4-12) and control cover (2) from control panel (3).

(8) Loosen two terminal screws (a); then tag and disconnect back cylinder wires (4) from terminal block (5).

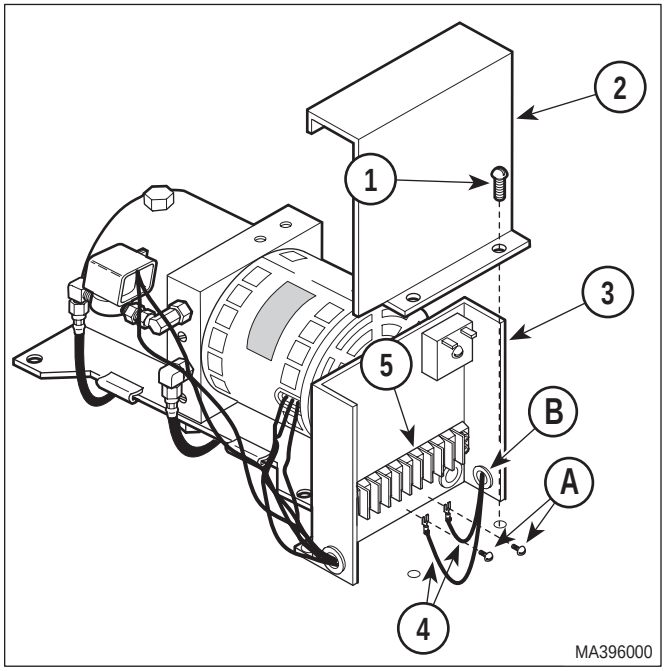

Figure 4-12. Back Cylinder Wires Disconnection / Connection

(9) Pull back cylinder wires (4) out thru wire hole (B).

(10) Remove four screws (1, Figure 4-13) and back cover (2) from back weldment (3).

(11) Cut two cable ties which are securing hose assemblies (4 and 5) to back cylinder (6).

(12) While supporting back weldment (3), remove four E-rings (7), two clevis pins (8), and partially separate back cylinder (6) from cylinder brackets (9). Fold back section over onto seat section.

(13) Tag hose assemblies (4 and 5).

(14) Disconnect hose assembly (4) from back cylinder (6).

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(15) Disconnect hose assembly (5) from back cylinder (6).

(16) Cut necessary cable ties and remove back cylinder (6) from table.

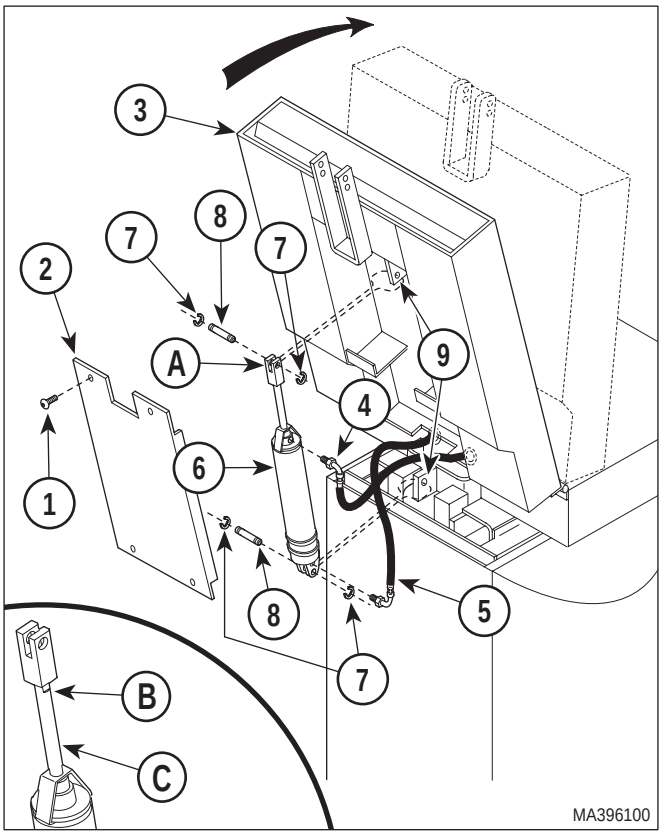

Figure 4-13. Back Cylinder Removal / Installation

B. Installation

NOTE
No sealant is required when connecting hose assemblies. The back cylinder has an o-ring in each port which seals the hose assemblies.

(1) Connect hose assembly (5, Figure 4-13) to back cylinder (6).

(2) Connect hose assembly (4) to back cylinder (6).

(3) Install back cylinder (6) on cylinder brackets (9) and secure with two clevis pins (8) through clevis (A) with four E-rings (7).

(4) Secure hose assemblies (4 and 5) to back cylinder (6) with two cable ties.

(5) Route back cylinder wires (4, Figure 4-12) thru table.

(6) Feed back cylinder wires (4) thru wire hole (B).

(7) Connect two back cylinder wires (4) to terminal block (5) and secure by tightening two terminal screws (A).

(8) Install control cover (2) on control panel (3) and secure with two screws (1).

(9) Secure wires and hoses to base weldment (9, Figure 4-11) with wire clip (8) and screw (7). Install any cable ties removed during removal.

(10) Install front inner shroud (5) on left and right hand outer shrouds (6) and secure with eight screws (4).

(11) Install front outer shroud (2) on left and right hand inner shrouds (3) and secure with four screws (1).

(12) Install upholstered seat section (Refer to step 6 of para 4.25).

(13) Plug table power cord into outlet.

(14) Lower BACK DOWN function all the way down.

EQUIPMENT ALERT
Tilt down function must be completely lowered for following step. Failure to do so will result in incorrect adjustment.

(15) If back section *is not* level with floor when the BACK DOWN function is completely lowered, perform steps 16 thru 18. If back section *is* level when the BACK DOWN function is completely lowered, go to step 19.

EQUIPMENT ALERT
The cylinder rod must be partially extended before performing step 17. If the cylinder rod is fully extended or retracted when step 17 is being performed, damage to seals will occurr.

(16) Raise BACK UP function up until cylinder rod is extended halfway.

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(17) Place a wrench on adjusting seats (B) of cylinder rod (C) and use it to rotate cylinder rod to adjust clevis up or down as necessary.

(18) Repeat steps 14 thru 17 until back section is level when BACK DOWN function is completely lowered.

(19) Install back cover (2) on back weldment (3) and secure with four screws (1).

(20) If necessary, add oil to motor pump (Refer to para 4.3).

(21) Install motor cover assembly (Refer to para 4.2).

4.13 Tilt Cylinder Removal / Installation

A. Removal

(1) If possible, lower TILT DOWN function all the way down.

(2) Raise FOOT UP function all the way up.

(3) Unplug table power cord from outlet.

(4) Remove motor cover assembly (Refer to para 4.2).

(5) Remove two screws (1, Figure 4-14) and control cover (2) from control panel (3).

(6) Loosen two terminal screws; then tag and disconnect two tilt cylinder wires (4) from terminal block (5).

(7) Pull tilt cylinder wires (4) out thru wire hole.

(8) Remove four screws (1, Figure 4-15) and front outer shroud (2) from left and right hand outer shrouds (3).

(9) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(10) Disconnect return manifold (7) from rod end of tilt cylinder (8).

(11) Disconnect power manifold (9) from base of tilt cylinder (8).

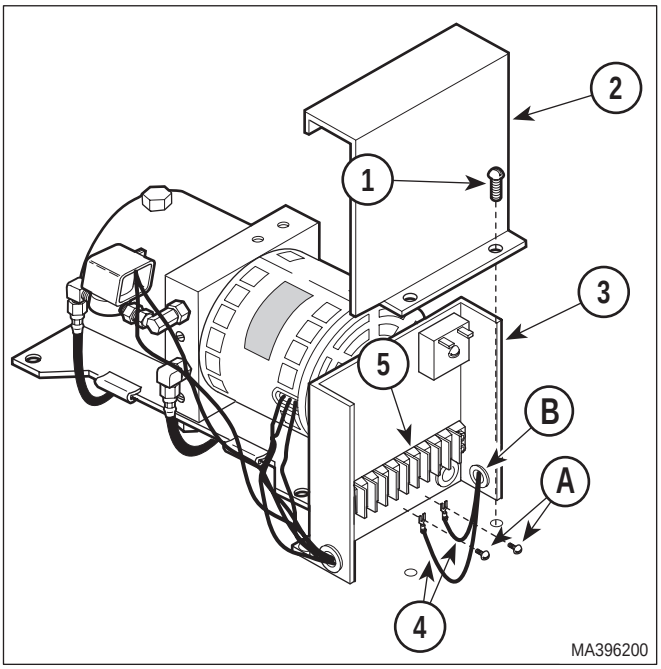

Figure 4-14. Tilt Cylinder Wire Disconnection / Connection

(12) Cut cable tie (A) which secures hose assemblies and wire harnesses to tilt cylinder (8).

WARNING
The foot end of table top must be supported while removing tilt cylinder. Failure to do will allow table top to fall which could result in serious personal injury.

NOTE
Cut cable ties as necessary to remove tilt cylinder.

(13) While supporting foot end of table top, remove four E-rings (10), two clevis pins (11), and tilt cylinder (8) from brackets (12).

B. Installation

(1) Install tilt cylinder (8, Figure 4-15) on brackets (12) and secure with two clevis pins (11) and four E-rings (10).

WARNING
Make sure the safety cable (B) is properly installed on the return and power manifolds. Failure to do so could result in serious personal injury to patient or table operator.

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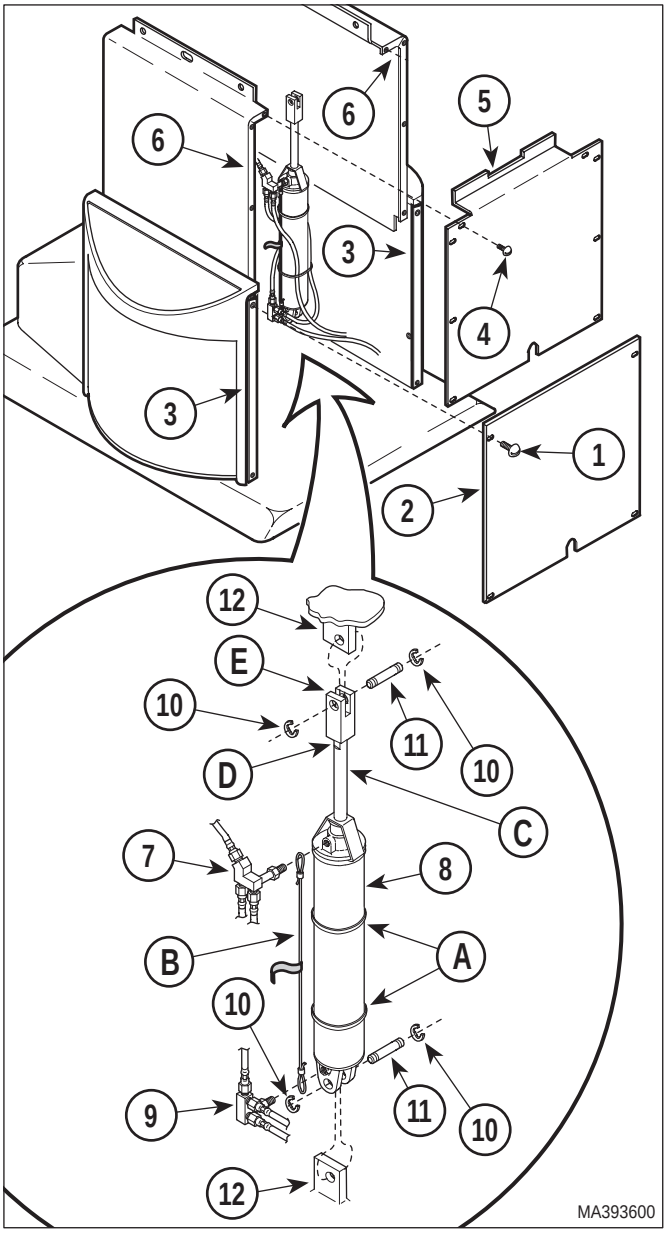

Figure 4-15. Tilt Cylinder Removal / Installation

(2) Connect power manifold (9) to base of tilt cylinder (8), making sure safety cable (B) is properly installed.

(3) Connect return manifold (7) to rod end of tilt cylinder (8).

(4) Secure wire harnesses and hose assemblies to tilt cylinder (8) with a cable tie.

(5) Route tilt cylinder wires (4, Figure 4-14) thru table.

(6) Feed tilt cylinder wires (4) thru wire hole (B) in control panel (3).

(7) Connect two tilt cylinder wires (4) to terminal block (5) and secure by tightening two terminal screws (A).

(8) Install control cover (2) on control panel (3) and secure with two screws (1).

(9) Install any cable ties which were removed.

(10) Plug table power cord into outlet.

(11) Lower TILT DOWN function all the way down.

(12) If seat section *is not* level with floor when the TILT DOWN function *is* completely lowered, perform steps 13 thru 15. If seat section is level when the TILT DOWN function is completely lowered, go to step 16.

EQUIPMENT ALERT
The cylinder rod (C) must be partially extended before performing step 14. If the cylinder rod is fully extended or retracted when step 14 is being performed, damage to seals will occurr.

(13) Raise TILT UP function up until cylinder rod is extended halfway.

(14) Place a wrench on adjusting seats D, Figure 4-15) of cylinder rod (C) and use it to rotate cylinder rod to adjust clevis (E) up or down as necessary.

(15) Repeat steps 11 thru 15 until seat section is level when TILT DOWN function is completely lowered.

(16) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(17) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(18) If necessary, add oil to motor pump (Refer to para 4.3).

(19) Install motor cover assembly (Refer to para 4.2).

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4.14 Base Cylinder Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove four screws (1, Figure 4-16) and back outer shroud (2) from left and right hand outer shrouds (3).

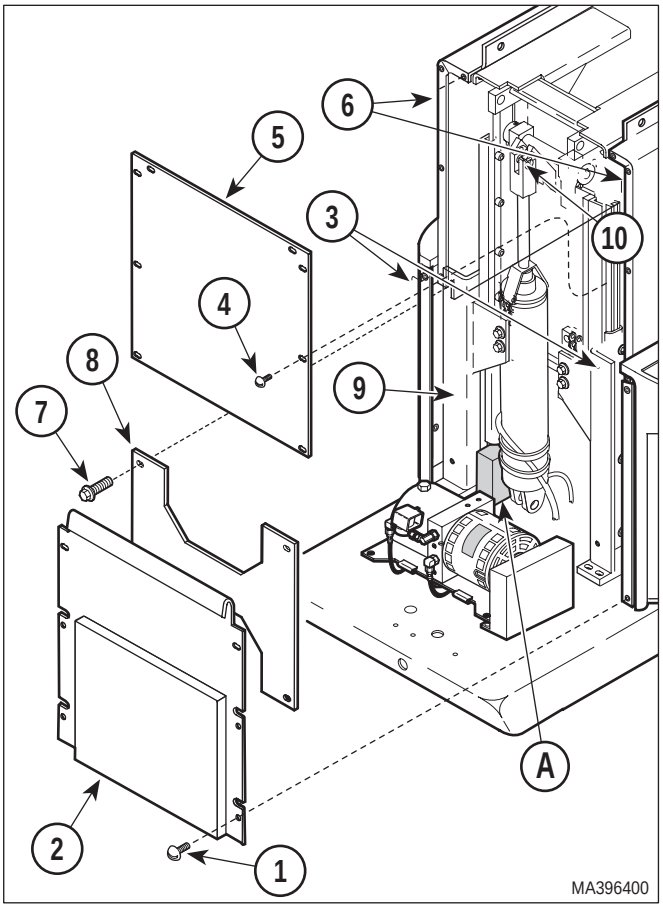

Figure 4-16. Base Cylinder Access

(4) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

NOTE
The motor pump and control panel can be carefully pushed out of the way to allow a socket and ratchet to be used on the bottom two screws (7).

(5) Remove four screws (7) and brace (8) from base slide assembly (9).

(6) Plug table power cord into outlet.

(7) If BASE DOWN function is operable, place a block (A) under middle slide of base slide assembly (9). Then lower the BASE DOWN function until the middle slide of the base slide assembly is resting on block and pressure is off clevis pin (10). If BASE DOWN function is not operable, move table top to a horizontal position and place supports under each end of table.

(8) Remove two screws (1, Figure 4-17) and control cover (2) from control panel (3).

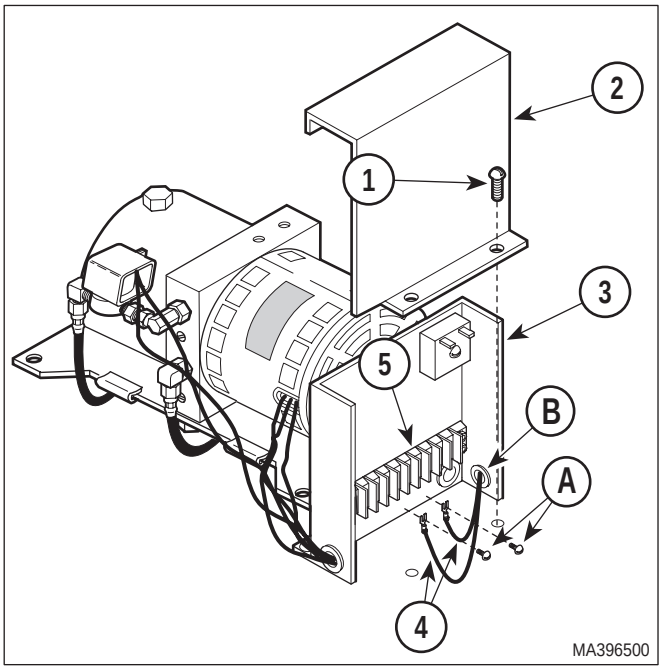

Figure 4-17. Base Cylinder Wires Disconnection / Connection

(9) Loosen two terminal screws (A); then tag and disconnect base cylinder wires (4) from terminal block (5).

(10) Pull base cylinder wires (4) out thru wire hole (B).

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DANGER
Make sure table top is properly secured from lowering or tipping over when base cylinder is disconnected from table top. Clevis pin (2, Figure 4-18) should not have any weight on it if table top is supported properly. Failure to have table top properly secured could result in serious personal injury or death.

(11) Remove hitch pin clip (1, Figure 4-18) and clevis pin (2) from rod end (A) of base cylinder (3).

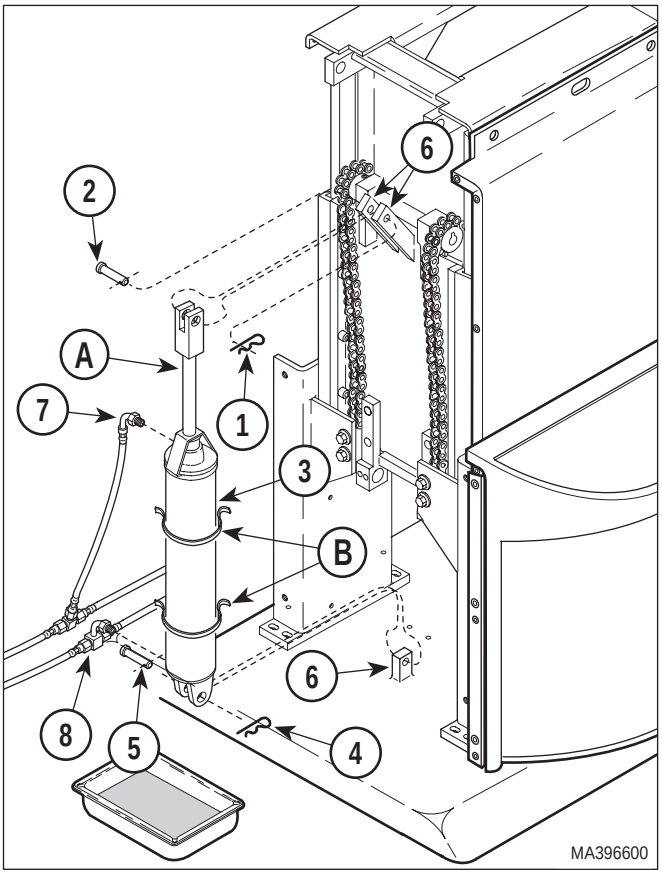

Figure 4-18. Base Cylinder Removal / Installation

(12) Remove hitch pin clip (4), clevis pin (5), and partially separate base cylinder (3) from brackets (6).

(13) Cut two cable ties (B) securing hose assembly (7) to base cylinder (3).

(14) Disconnect hose assembly (7) from base cylinder (3).

(15) Place rags under base tee (8).

NOTE
When base tee is disconnected from base cylinder, oil will be free to flow out of the motor pump thru the base tee. Either be ready to install the new base cylinder or have drain pan and rags ready to catch the oil.

(16) Disconnect base tee (8) from base cylinder (3). Remove base cylinder from table.

B. Installation

(1) Position base cylinder (3, Figure 4-18) on table.

(2) Connect base tee (8) to base cylinder (3).

(3) Connect hose assembly (7) to base cylinder (3).

(4) Secure hose assembly (7) to base cylinder (3) with two cable ties (B).

(5) Install base cylinder (3) on brackets (6) and secure with clevis pins (2 and 5) and hitch pin clips (1 and 4).

(6) Feed base cylinder wires (4, Figure 4-17) thru wire hole (B).

(7) Connect two base cylinder wires (4) to terminal block (5) and secure by tightening two terminal screws (A).

(8) Install control cover (2) on control panel (3) and secure with two screws (1).

(9) Plug table power cord into outlet.

(10) See Figure 4-16. Raise BASE UP function slightly and remove block from under middle slide of base slide assembly (9) or remove supports from under table top.

(11) Lower BASE DOWN function all the way down.

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(12) See Figure 4-19. If there *is not* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap (A) between inner member weldment (B) and top of middle slide (C) when the BASE DOWN function is completely lowered (it is especially important that the inner member weldment does not come into contact with top of middle slide), perform steps 13 thru 15. If gap is correct when the BASE DOWN function is completely lowered, go to step 16.

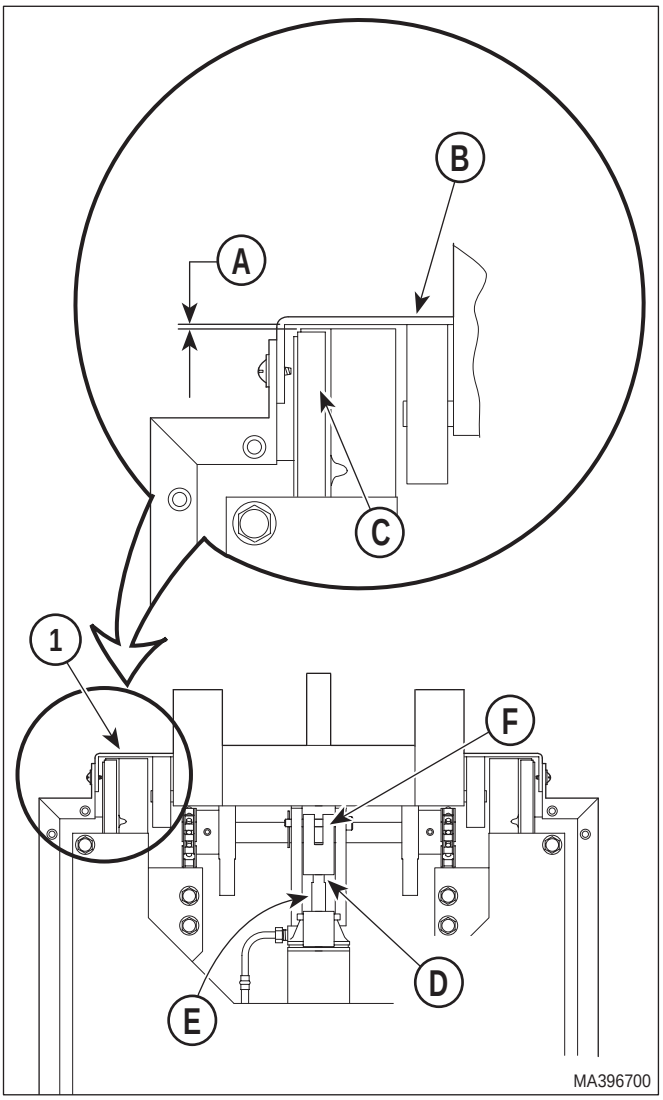

Figure 4-19. Base Cylinder Clevis Adjustment

EQUIPMENT ALERT

The cylinder rod (E) must be partially ex -tended before performing step 14. If the cylinder rod is fully extended or retracted when step 14 is being performed, damage to seals will occurr.

(13) Raise BASE UP function up until cylinder rod is extended halfway.

(14) Place a wrench on adjusting seats (D) of cylinder rod (E) and use it to rotate cylinder rod to adjust clevis (F) up or down as necessary.

(15) Repeat steps 11 thru 15 until there *is* a 1/16 to 1/8 inch (1.6 to 3.2 mm) gap (A) between inner member weldment (B) and middle slide (C) of base slide assembly when the BASE DOWN function is completely lowered.

(16) Install brace (8, Figure 4-16) on base slide assembly (9) and secure with four screws (7).

(17) Install any cable ties (B) removed during removal.

(18) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(19) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(20) If necessary, add oil to motor pump (Refer to para 4.3).

(21) Install motor cover assembly (Refer to para 4.2).

4.15 Foot Cylinder Removal / Installation

A. Removal

(1) If possible, raise FOOT UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove motor cover assembly (Refer to para 4.2).

(4) Remove two screws (1, Figure 4-20) and control cover (2) from control panel (3).

(5) Loosen two terminal screws (A); then tag and disconnect two foot cylinder wires (4) from terminal block (5).

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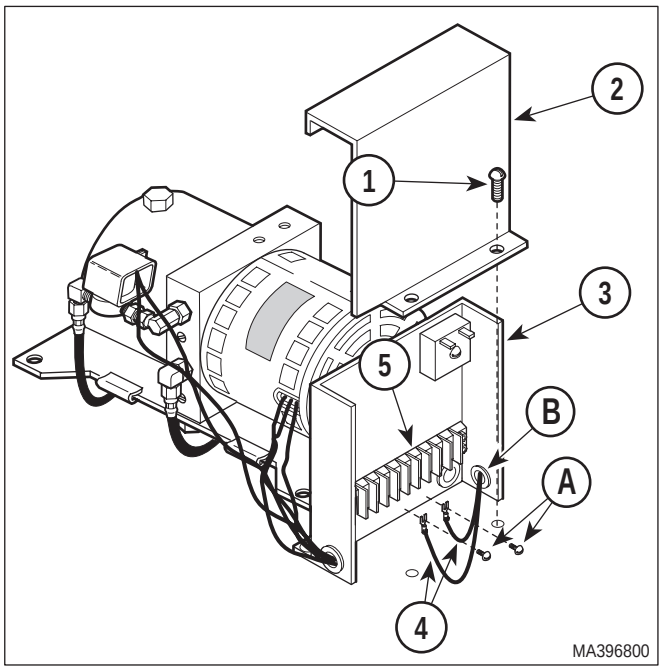

Figure 4-20. Foot Cylinder Wire Disconnection / Connection

(6) Pull foot cylinder wires (4) out thru wire hole (B).

(7) Remove four screws (1, Figure 4-21) and front outer shroud (2) from left and right hand outer shrouds (3).

(8) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(9) Cut cable ties (D) securing foot cylinder wire harness (1, Figure 4-22).

(10) Remove screw (2) and wire clip (3) securing foot cylinder wire harness (1) to seat weldment (4).

(11) Cut cable ties securing hose assemblies to foot cylinder (5).

(12) Disconnect hose assembly (6) from foot cylinder (5).

(13) Disconnect hose assembly (7) from foot cylinder (5).

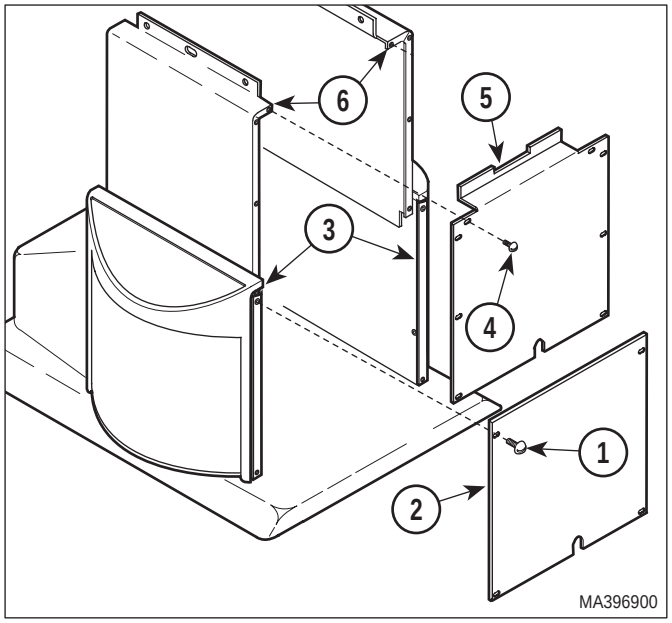

Figure 4-21. Shrouds Removal / Installation

(14) Support foot section of table top and then remove hitch pin clip (8), clevis pin (9), two E-rings (10), clevis pin (11), and foot cylinder (5) from brackets (12).

B. Installation

(1) Install foot cylinder (5, Figure 4-22) on brackets (12) and secure with clevis pin (11), two E-rings (10), clevis pin (9), and hitch pin clip (8).

(2) Connect hose assembly (7) to foot cylinder (5).

(3) Connect hose assembly (6) to foot cylinder (5).

(4) Secure hose assemblies (6 and 7) to foot cylinder (5) with cable ties.

(5) Secure foot cylinder wire harness (1) to seat weldment (4) with wire clip (3) and screw (2).

(6) Feed foot cylinder wires (4, Figure 4-20) thru wire hole (B) in control panel (3).

(7) Connect two foot cylinder wires (4) to terminal block (5) and secure with two terminal screws (A).

(8) Install control cover (2) on control panel (3) and secure with two screws (1).

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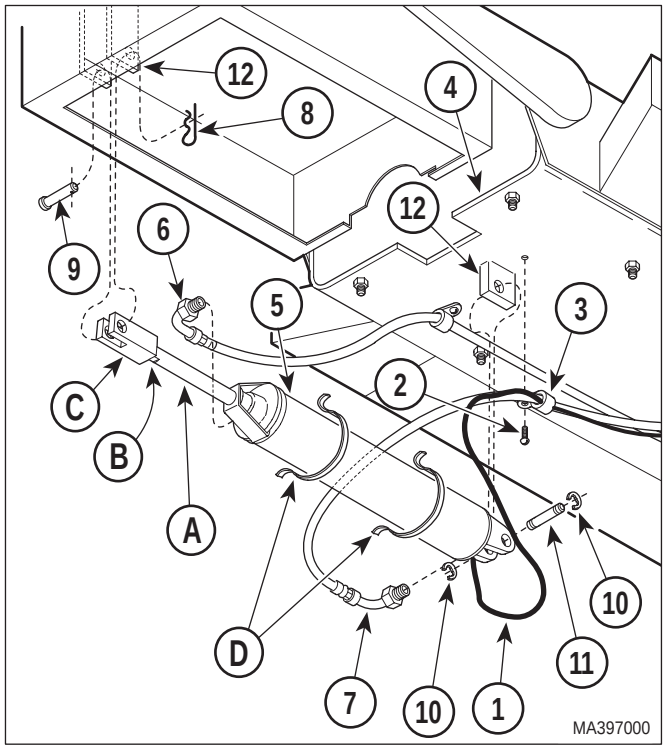

Figure 4-22. Foot Cylinder Removal / Installation

(9) Plug table power cord into outlet.

(10) Raise FOOT UP function all the way up.

(11) If foot section *is not* level with seat section when FOOT UP function is completely raised, perform steps 12 thru 14. See Figure 4-22. If foot section *is* level when the FOOT UP function is completely raised, go to step 15.

EQUIPMENT ALERT

The cylinder rod (A) must be partially ex -tended before performing step 13. If the cylinder rod is fully extended or retracted when step 13 is being performed, damage to seals will occurr.

(12) Lower FOOT DOWN function down until cylinder rod is extended halfway.

(13) Place a wrench on adjusting seats (B) of cylinder rod and use it to rotate cylinder rod to adjust clevis (C) up or down as necessary.

(14) Repeat steps 10 thru 14 until foot section is level with seat section when FOOT UP function is completely raised.

(15) Install any cable ties (D) removed during removal.

(16) Install front inner shroud (5, Figure 4-22) on left and right hand inner shrouds (6) and secure with eight screws (4).

(17) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(18) If necessary, add oil to motor pump (Refer to para 4.3).

(19) Install motor cover assembly (Refer to para 4.2).

(20) Plug table power cord into outlet.

4.16 Time Delay Relay Removal / Installation

A. Removal

(1) Unplug table power cord from outlet.

(2) Remove motor cover assembly (Refer to para 4.2).

(3) Remove two screws (1, Figure 4-23) and control cover (2) from control panel (3).

(4) Tag and disconnect two wires (4) from terminals of time delay relay (5).

(5) Remove nut (6), screw (7), washer (8), and time delay relay (5) from control panel (3).

B. Installation

(1) Install time delay relay (5) on control panel (3) and secure with washer (8), screw (7), and nut (6).

(2) Connect two wires (4) to terminals of time delay relay (5).

(3) Install control cover (2) on control panel (3) and secure with two screws (1).

(4) Install motor cover assembly (Refer to para 4.2).

(5) Plug table power cord into outlet.

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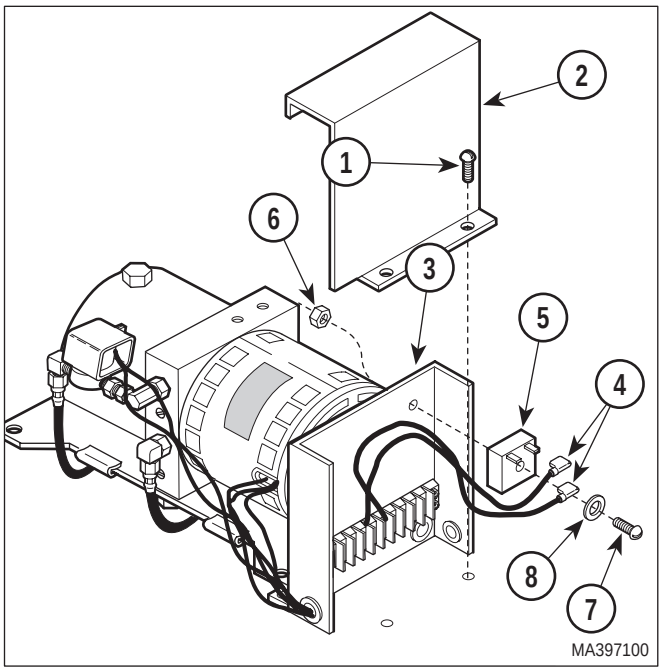

Figure 4-23. Time Delay Relay Removal / Installation

4.17 Capacitors Removal / Installation

A. Removal

(1) If possible, raise FOOT UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-24) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) If necessary to gain access to capacitors, remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Cut cable tie (A) securing wires to capacitor (7).

(6) Using a screwdriver, pry tab (B) of capacitor mounting bracket (8) upward and remove capacitor (7) from capacitor mounting bracket.

(7) Remove capacitor cap (9) from capacitor (7).

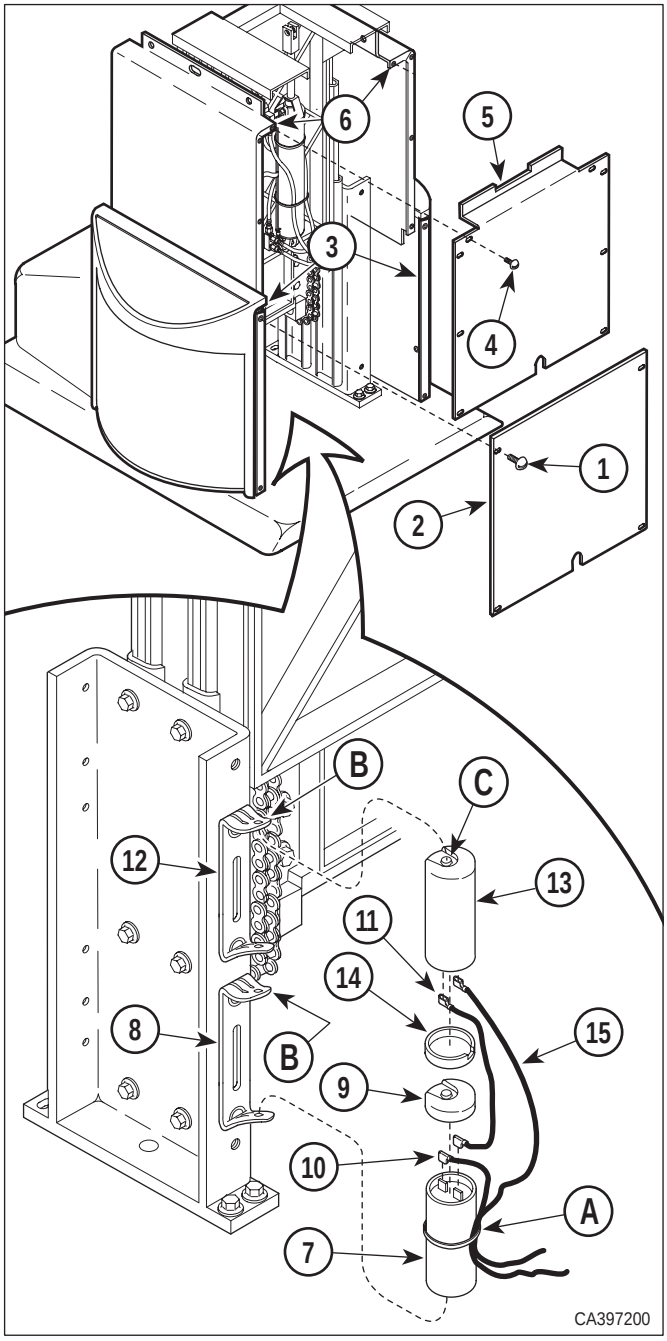

Figure 4-24. Capacitors Removal / Installation

WARNING
A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

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(8) Discharge capacitor (7).

(9) Disconnect wires (10 and 11) from terminals of capacitor (7).

(10) Using a screwdriver, pry tab of capacitor mounting bracket (12) upward and remove capacitor (13) from capacitor mounting bracket.

(11) Remove capacitor cap (14) from capacitor (13).

WARNING

A capacitor contains stored electricity. Never touch terminals of a capacitor, even if power has been shut off or disconnected. Always discharge capacitor before touching capacitor terminals or wires. Failure to comply with these instruction could result in serious personal injury or death.

(12) Discharge capacitor (13).

(13) Disconnect wires (11 and 15) from terminals of capacitor (13).

B. Installation

(1) Connect capacitor wires (11 and 15) to terminals of capacitor (13).

(2) Install capacitor cap (14) on capacitor (13).

(3) Position bottom of capacitor (13) on capacitor mounting bracket (12) and then push the top of the capacitor in. Using a screwdriver, force tab (B) of capacitor mounting bracket (12) down over catch (C).

(4) Connect capacitor wires (10 and 11) to terminals of capacitor (7).

(5) Install capacitor cap (9) on capacitor (7).

(6) Position bottom of capacitor (7) on capacitor mounting bracket (8) and then push the top of the capacitor in. Using a screwdriver, force tab of capacitor mounting bracket (8) down over catch.

(7) Install cable tie (A) to secure wire to capacitor (7).

(8) If removed, install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(9) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(10) Plug table power cord into outlet.

4.18 Chain Assembly Adjustment

A. Adjustment

(1) Raise TABLE UP function all the way up.

(2) Unplug table power cord from outlet.

(3) Remove four screws (1, Figure 4-25) and front outer shroud (2) from left and right hand outer shrouds (3).

(4) Remove eight screws (4) and front inner shroud (5) from left and right hand inner shrouds (6).

(5) Loosen four screws (7).

EQUIPMENT ALERT

Adjust chains so they are tight, yet have a slight spring back. Also, adjust chains so there is an equal amount of tension on each chain. Failure to do so will result in chains loosening earlier and uneven wear.

(6) Insert a pry bar or large screwdriver into adjustment gap (A) and pry downward on idler adjustment weldment (8) until chains (9) are tight, but not drum tight. Tighten four screws (7).

(7) Install front inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(8) Install front outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(9) Plug table power cord into outlet.

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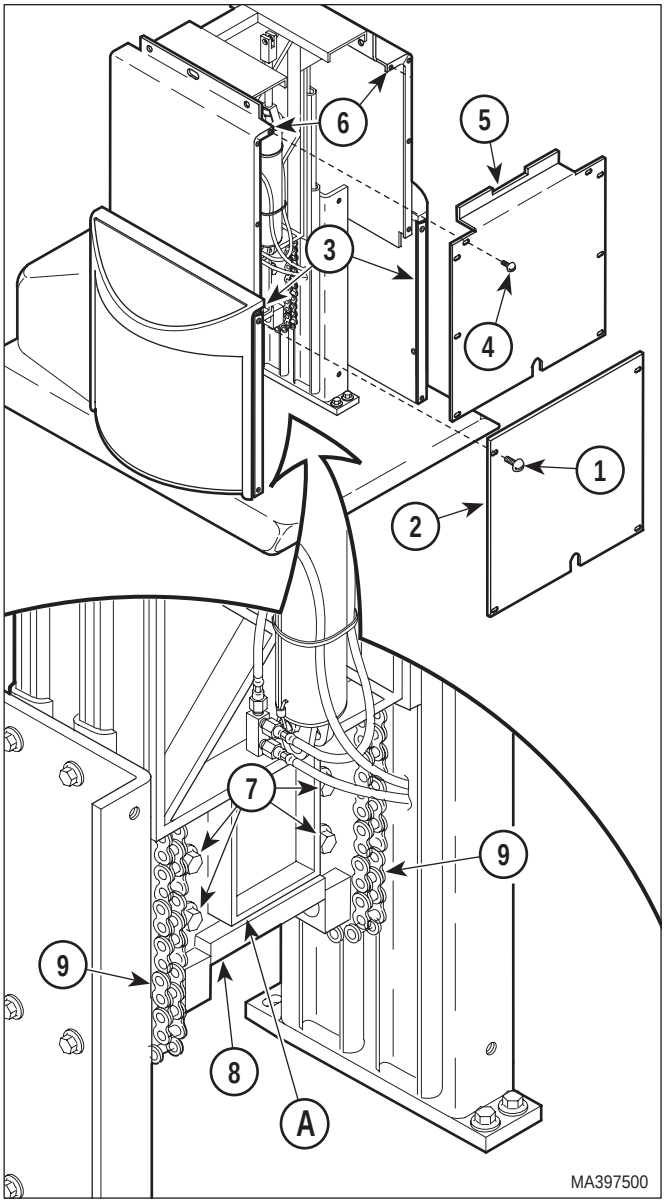

Figure 4-25. Chain Assembly Adjustment

4.19 Base Slide Assembly Removal / Installation

A. Removal

(1) If possible, raise TABLE UP function all the way up.

(2) Move the back, seat, and foot sections of the table top to a horizontal position.

(3) Unplug table power cord from outlet.

(4) Remove motor cover assembly (Refer to para 4.2).

(5) Remove four screws (1, Figure 4-26) and back outer shroud (2) from left and right hand outer shrouds (3).

(6) Remove eight screws (4) and back inner shroud (5) from left and right hand inner shrouds (6).

(7) Remove four screws (7) and front outer shroud (8) from left and right hand outer shrouds (3).

(8) Remove eight screws (9) and front inner shroud (10) from left and right hand inner shrouds (6).

(9) Remove six screws (11), washers (12), and left and right hand inner shrouds (6) from base slide assembly (13).

(10) Remove six screws (14) and left and right hand outer shrouds (3) from base weldment (15).

WARNING

The supports must be capable of holding up table top after table top is disconnected from base slide assembly and the base slide assembly is removed. Failure to support table top properly could result in table top falling out-of-control which could result in serious personal injury or death.

(11) Place supports (A, Figure 4-27) under foot section (B) and head section (C) of table top, making sure weight of table top (D) is being supported by supports. If necessary, plug table power cord into outlet and lower table top onto supports. Unplug table power cord from outlet.

(12) Remove two E-rings (1, Figure 4-27), clevis pin (2), and separate tilt cylinder (3) from bracket (4).

(13) Loosen four setscrews (5). Remove two tilt pivot pins (6) from base slide assembly (7).

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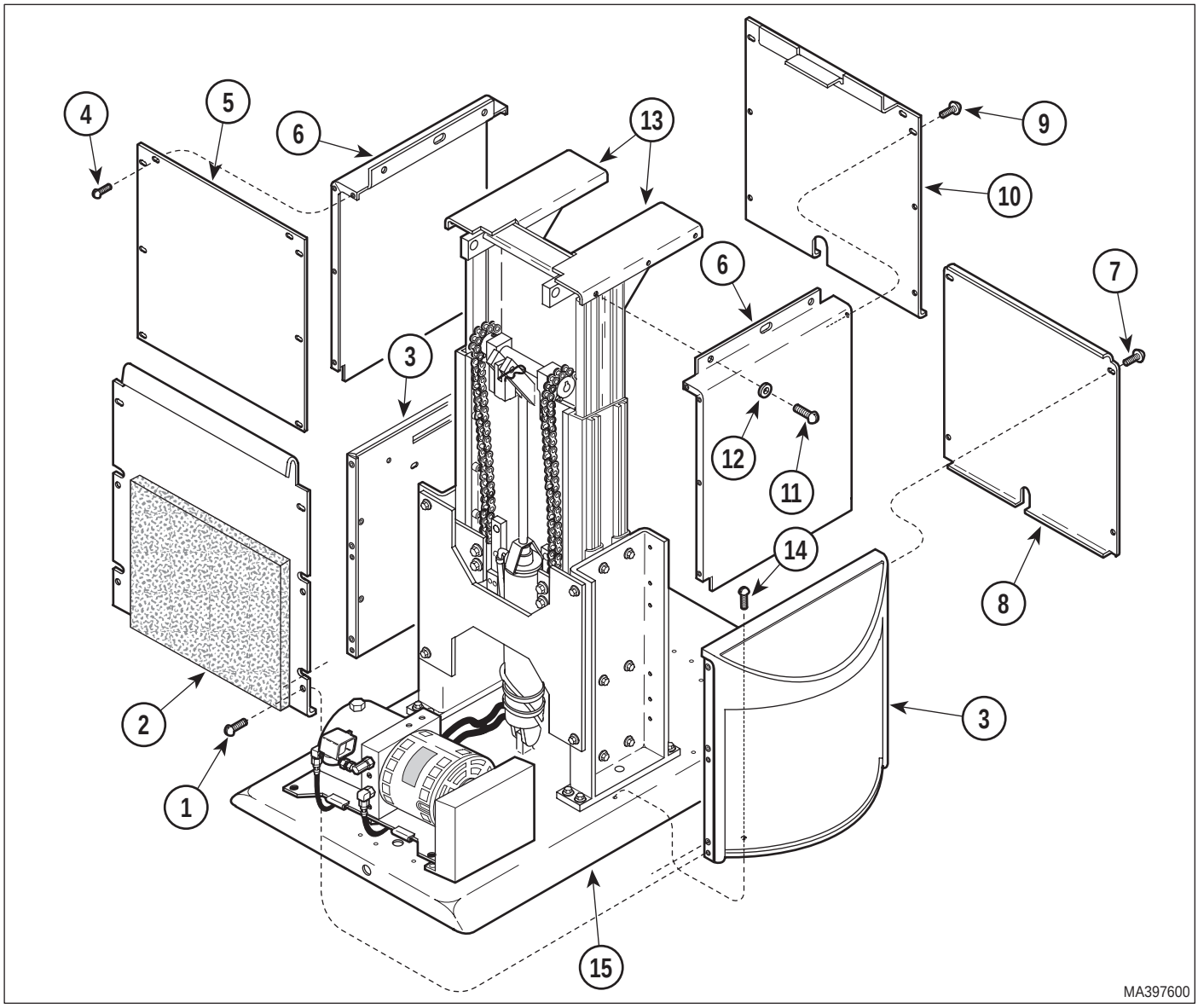

Figure 4-26. Shrouds Removal / Installation

DANGER

Make sure table top (D) is properly supported for the following step. Table top will rest only on supports after this step. Also do not touch any wires inside of table when power cord is plugged in. This could result in electrical shock. Failure to comply with this warning could result in serious personal injury or death.

(14) Plug table power cord into outlet. Lower TABLE DOWN function all the way down. Unplug table power cord from outlet.

WARNING

Make sure base slide assembly is fully retracted (collapsed) before disconnecting base cylinder. Failure to do so will result in base slide assembly collapsing after base cylinder is disconnected which could result in serious personal injury.

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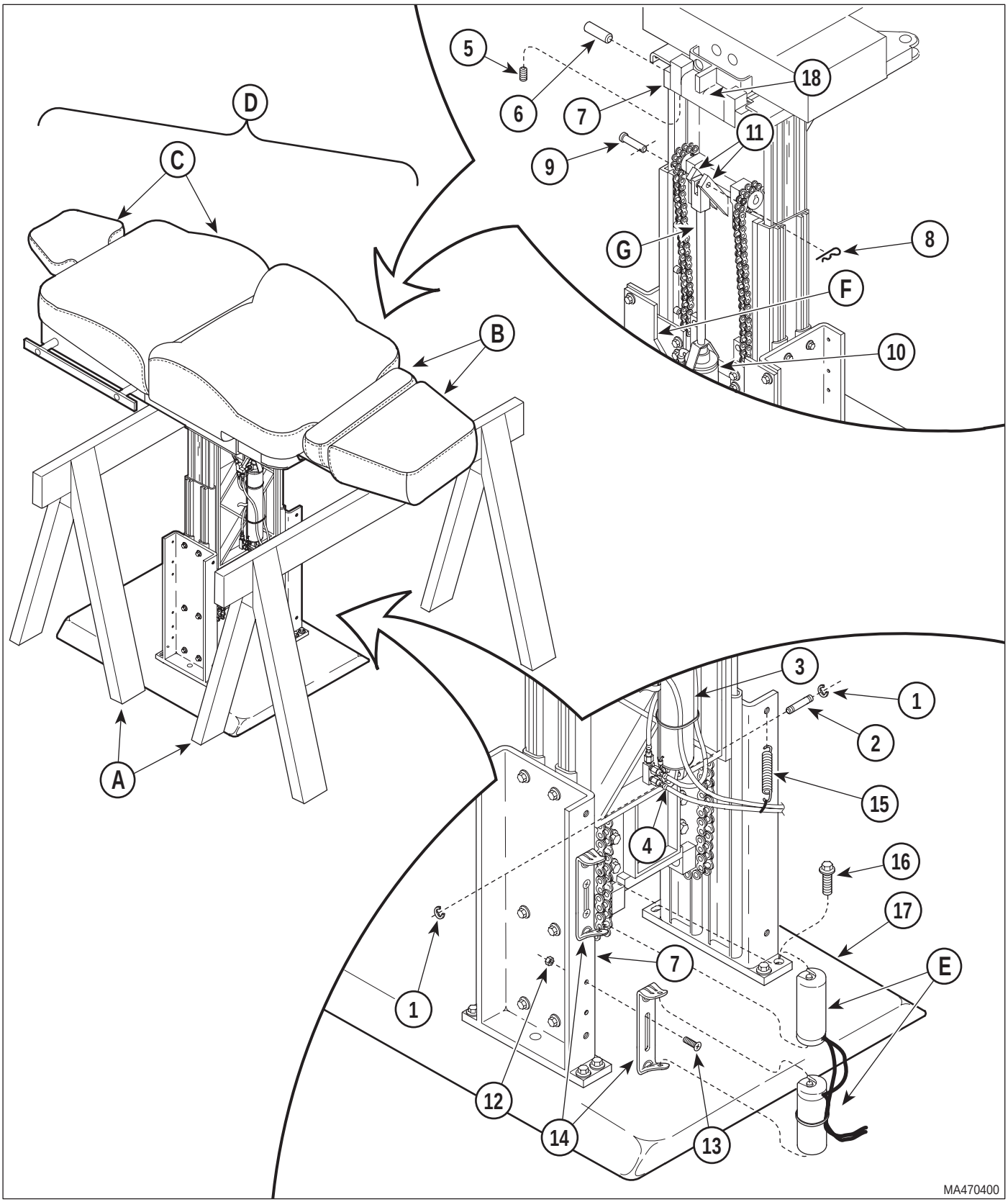

Figure 4-27. Base Slide Assembly Removal / Installation

(15) Remove hitch pin clip (8), clevis pin (9), and separate rod of base cylinder (10) from bracket (11).

(16) Remove capacitors (E, [Refer to para 4.17]).

(17) Remove four nuts (12), four screws (13), and two capacitor mounting brackets (14) from base slide assembly (7).

(18) Disconnect spring (15) from base slide assembly (7).

(19) Remove eight screws (16) from base slide assembly (7).

NOTE
If necessary, remove four screws and brace (F) to allow base slide assembly to be pulled over base cylinder.

(20) With the help of an assistant, remove base slide assembly (7) from base weldment (17).

B. Installation

(1) With the help of an assistant, install base slide assembly (7, Figure 4-27) on base weldment (17), making sure base cylinder (10) gets inserted between brace (F) and base slide assembly.

(2) Secure base slide assembly (7) on base weldment (17) with eight screws (16).

(3) Connect spring (15) to base slide assembly (7).

(4) Install two capacitor mounting brackets (14) on base slide assembly (7) and secure with four screws (13) and nuts (12).

(5) Install capacitors (F, [Refer to para 4.17]).

(6) Install rod end (G) of base cylinder (10) on bracket (11) and secure with clevis pin (9) and hitch pin clip (8).

NOTE
Install beveled edge of tilt pivot pins first. The beveled edge allows the tilt pivot pins to be started more easily.

(7) Raise BASE UP function until base slide assembly (7) is aligned with seat weldment (18). Secure base slide assembly to seat weldment with two tilt pivot pins (6).

(8) Secure tilt pivot pins (6) in place by tightening four setscrews (5).

(9) Install base of tilt cylinder (3) on bracket (4) and secure with clevis pin (2) and two E-rings (1).

(10) Remove supports (A) from under head section (C) and foot section (B) of table top (D).

(11) Install left and right hand outer shrouds (3, Figure 4-26) on base weldment (15) and secure with six screws (14).

(12) Install left and right hand inner shrouds (6) on base slide assembly (13) and secure with six washers (12) and screws (11).

(13) Install front inner shroud (10) on left and right hand inner shrouds (6) and secure with eight screws (9).

(14) Install front outer shroud (8) on left and right hand outer shrouds (3) and secure with four screws (7).

(15) Install back inner shroud (5) on left and right hand inner shrouds (6) and secure with eight screws (4).

(16) Install back outer shroud (2) on left and right hand outer shrouds (3) and secure with four screws (1).

(17) Install motor cover assembly (Refer to para 4.2).

(18) Plug table power cord into outlet.

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4.20 Headrest Adjustment

A. Adjustment

(1) Unlock lock handle (1, Figure 4-28).

(2) Loosen setscrew (2).

(3) Tighten adjusting screw (3) slightly; then lock lock handle (1). Repeat this step until axis (4) has the strongest possible holding power, but operation of lock handle is not too difficult.

(4) Tighten setscrew (2).

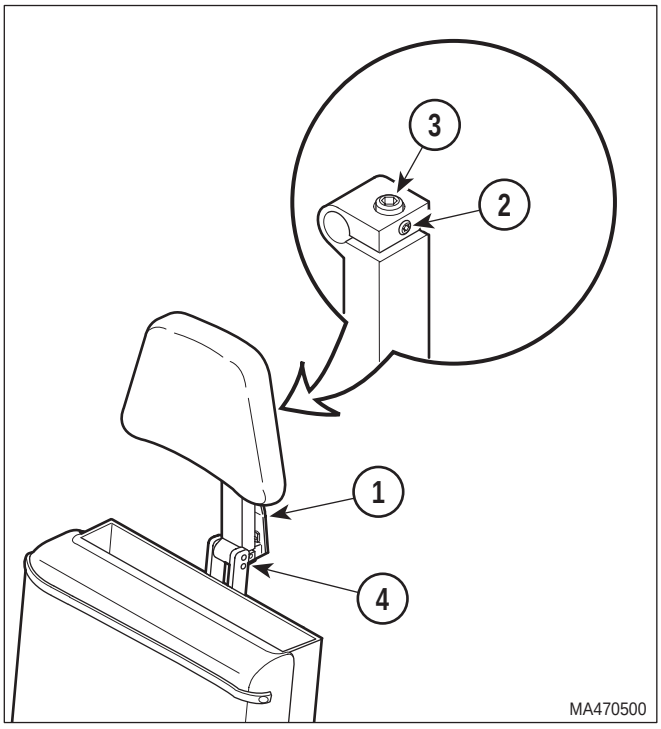

Figure 4-28. Headrest Adjustment

4.21 Headrest Handle Handle Stops Adjustment

A. Adjustment

(1) Loosen nut (1, Figure 4-29).

(2) Push on upper lock handle until it reaches a point where the upper lock handle wants to lock itself by going over center; then allow upper lock handle to go over center a few degrees. Hold the upper lock handle in this position and adjust stop screw (2) so the upper lock handle will be forced to stop in this position each time it is locked.

(3) Tighten nut (1).

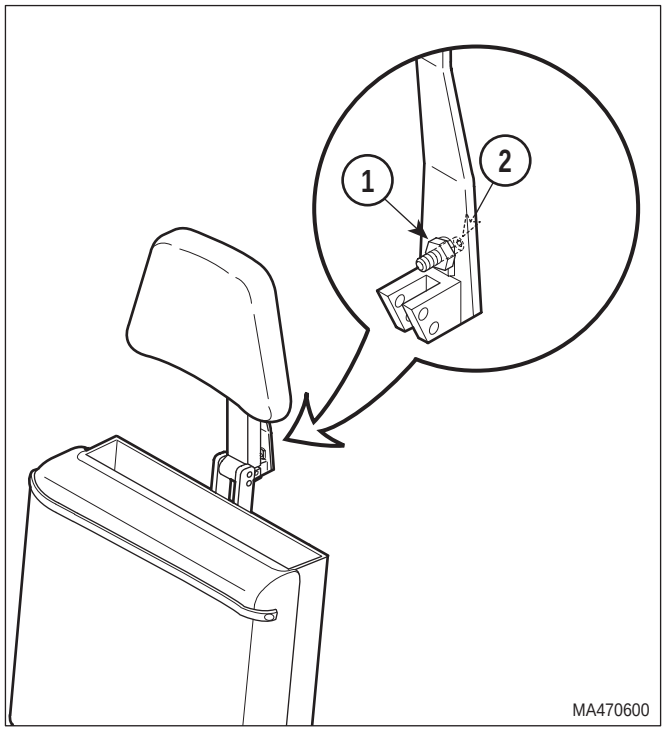

Figure 4-29. Headrest Handles Handle Stops Adjustment

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4.22 Typical Foot Switch Removal / Installation

A. Removal

WARNING
The foot control contains high voltage (115 VAC) when the table power cord is plugged in. Unplug table power cord before disassembling foot control to prevent electrical shock. Failure to do so could result in serious personal injury or death.

(1) Unplug table power cord from outlet.

(2) Remove two screws (1, Figure 4-30) and partially separate foot switch bracket (2) from foot control casting (3).

(3) Remove screw (4), spacer (5), and pedal (6) from foot switch bracket (2).

(4) Tag and disconnect four wires (7) from terminals of foot switch (8).

(5) Remove two nuts (9), washers (10), screws (11), and foot switch (8) from foot switch bracket (2).

B. Installation

(1) Install foot switch (8) on foot switch bracket (2) and secure with two screws (11), washers (10), and nuts (9).

(2) Connect four wires (7) to terminals of foot switch (8).

(3) Ensure springs (A) and spacers (C) are in position and have not fallen off.

(4) Install pedal (6) on foot switch bracket (2) and secure with spacer (5) and screw (4), making sure pedal is mounted on pivot spacer (B)).

(5) Install foot switch bracket (2) on foot control casting (3) and secure with two screws (1).

(6) Plug table power cord into outlet.

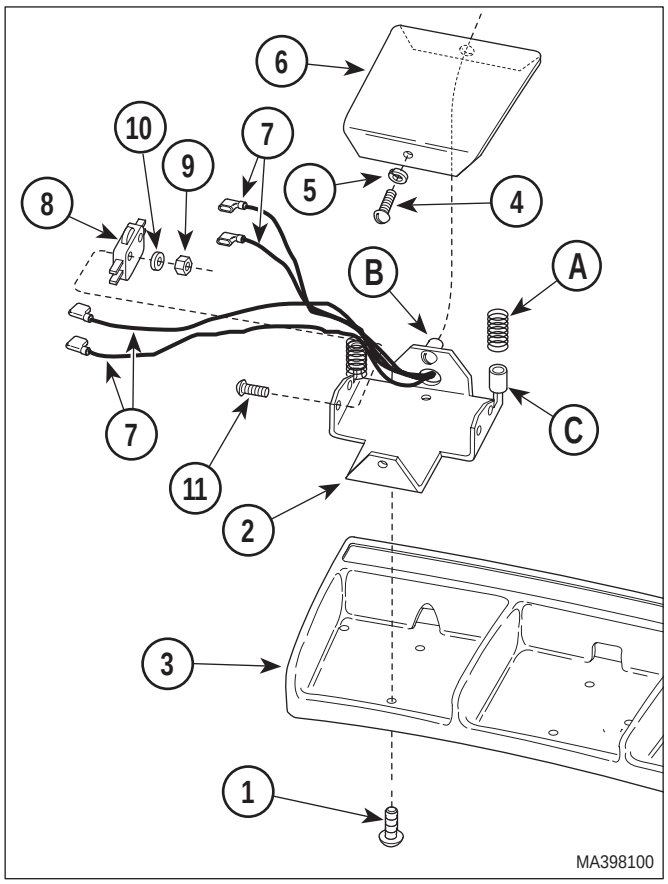

Figure 4-30. Typical Foot Switch Removal / Installation

4.23 Upholstery Removal / Installation

A. Removal

(1) Move table top to flat position.

Upholstered Headrest Assembly Removal

(2) Unlock (A) three locking tabs (1, Figure 4-31) by pulling on locking tabs until locking tabs are free of three studs (2).

(3) Remove upholstered headrest assembly (3) from headboard pivot mount (4) by pulling upholstered headrest assembly straight off.

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Upholstered Back Section Removal

NOTE
Locking tabs are in paper roll holder cavity.

(4) Unlock (A) two locking tabs (5) by pulling on locking tabs until locking tabs are free of studs (6).

(5) On a two piece seat & back upholstery set, raise upward on head end of upholstered back section (7), approximately 1" (2.54 cm), until two studs (6) are free of back weldment (8); then slide upholstered back section approximately 1 in. (2.5 cm) toward head end of table until stud (9) is in rounded part of locking slot (C). Lift upholstered back section (7) straight up and remove from back weldment (8).

NOTE
The upholstery may be difficult to raise up because there is a velcro strip holding the upholstered back down.

On a one piece seat & back upholstery set, raise upward on upholstered back section (7) until two studs (6) are free of back weldment (8); then swing upholstered back section (7) upward so that it rests against upholstered seat section (12).

Upholstered Seat Section Removal

(6) Lower FOOT DOWN function all the way down.

(7) Unlock (A) two locking tabs (10) by pulling on locking tabs until locking tabs are free of studs (11).

(8) Raise upward on foot end of upholstered seat section (12), approximately 1" (2.54 cm), until two studs (11) are free of seat weldment (13); then slide upholstered seat section approximately 1 in. (2.5 cm) toward foot end of table until two studs (14) are in rounded part of locking slots (D). Lift upholstered seat section (12) straight up and remove from seat weldment (13).

Upholstered Leg Rest Removal

(9) Raise FOOT UP function all the way up.

(10) Unlock (A) two locking tabs (15) by pulling on locking tabs until locking tabs are free of studs (16).

(11) Remove upholstered leg rest (17) from foot extension weldment (18) by pulling straight up.

Upholstered Foot Rest Removal

(12) Unlock (A) three locking tabs (19) by pulling on locking tabs until locking tabs are free of three studs (20).

(13) Remove upholstered foot rest (21) from foot extension weldment (18) by pulling straight up.

Side Panel Insert Removal

(14) Using an index finger, reach thru access hole (E) and push outward on side panel insert (22) until bottom edge of side panel insert can be grasped by the other hand. Pull outward on bottom of side panel insert until it "pops" off of side panel (23).

B. Installation

Side Panel Insert Installation

(1) Insert one end of side panel insert (22) into one of the panel slots (F) on side panel (23). Flex side panel insert in the middle and then insert free end of side panel insert into remaining panel slot (F) on other end of side panel. Work side panel insert into proper position.

Upholstered Foot Rest Installation

(2) Install upholstered foot rest (21) on foot extension weldment (18) and secure by locking three locking tabs (19) onto three studs (20).

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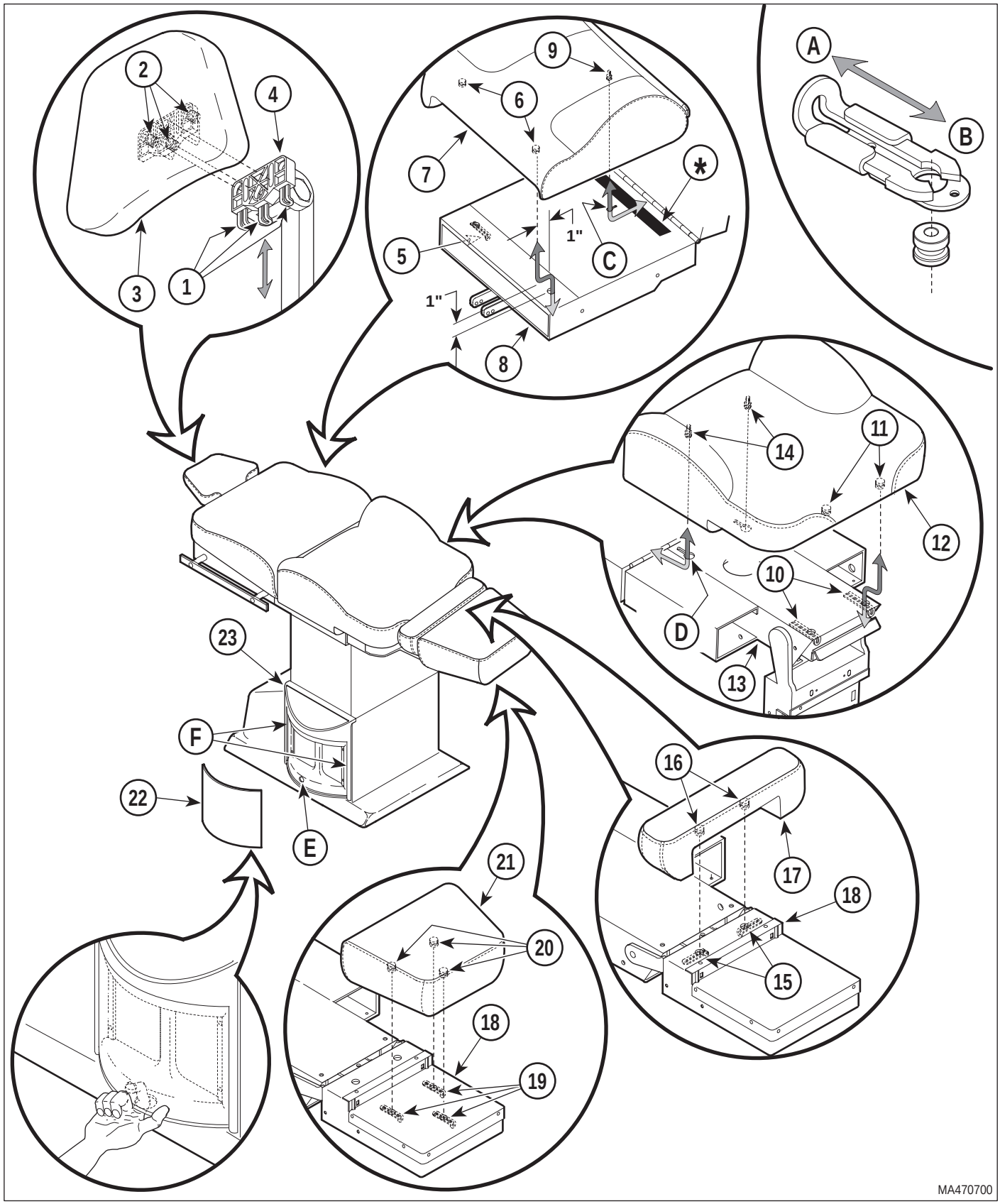

Figure 4-31. Upholstery Removal / Installation

Upholstered Leg Rest Installation

(3) Install upholstered leg rest (17) on foot extension weldment (18) and secure by locking (B) two locking tabs (15) onto two studs (16).

(4) Lower FOOT DOWN function all the way down.

Upholstered Seat Section Installation

DANGER
At completion of following step, ensure that upholstered seat section is secure by lifting up on its edges. Failure to secure upholstered seat section properly could result in serious injury to patient.

(5) Install head end of upholstered seat section (12) on seat weldment (13), *making sure two studs (14) are inserted in rounded part of locking slots (D)*; then slide upholstered seat section (12) toward head end of table until two studs (11) fit thru stud holes in seat weldment (13). Secure upholstered seat section (12) in place by locking two locking tabs (10) onto two studs (11).

Upholstered Back Section Installation

DANGER
At completion of following step, ensure that upholstered back section is secure by lifting up on its edges. Failure to secure upholstered back section properly could result in serious injury to patient.

NOTE
Locking tabs are in paper roll holder cavity.

(6) On a two piece seat & back upholstery set, install foot end of upholstered back section (7) on back weldment (8), *making sure stud (9) is inserted in rounded part of locking slot (C);* then slide upholstered back section (7) toward foot end of table until two studs (6) fit thru stud holes in back weldment (8). Secure upholstered back section (7) in place by locking (B) two locking tabs (5) onto two studs (6).

NOTE
On a one piece seat & back upholstery set, a strip of velcro is used instead of a stud (9) and locking slot (C). If installing upholstered seat section for the first time, the backing from the velcro strip must be removed and it must be firmly applied to the back weldment (8).

On a one piece seat & back upholstery set, lower upholstered back section (7) down onto back weldment (8), *making sure two studs (6) are inserted in two stud holes in back weldment.* Secure upholstered back section (C) in place by locking two locking tabs (5) onto two studs (6).

Upholstered Headrest Assembly Installation

(7) Install upholstered headrest assembly (3) on headboard pivot mount (4) and secure by locking three locking tabs (1) onto three studs (2).(5) Lower FOOT DOWN function all the way down.

4.24 Hydraulic System Flushing Procedure

NOTE
The following procedure is recommended for the following reasons:
- The hydraulic system is excessively contaminated with dirt particles or water, causing repeated malfunctions of hydraulic components.
- An oil other than light weight mineral oil has been added to the hydraulic system, causing the table to malfunction or perform erratically.

A. Flushing Procedure

(1) Lower TABLE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions all the way down.

(2) Remove motor cover assembly (Refer to para 4.2).

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(3) Remove filler cap (1, Figure 4-32) from reservoir (2).

(4) Get a suitable drain pan with a capacity of approximately 2 quarts (1.9 liters).

(5) Using a syringe or suction device, remove all oil from the reservoir (2).

(6) Refill reservoir (2) with light grade mineral oil.

(7) Disconnect hose (A) from down functions shuttle valve (3) and place end of hose in drain pan.

(8) Raise TABLE UP, BACK UP, TILT UP, and FOOT UP functions all the way up, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(9) Connect hose (A) to down functions shuttle valve (3).

(10) Disconnect hose (B) from up functions shuttle valve (4) and place end of hose in drain pan.

(11) Lower TABLE DOWN, BACK DOWN, TILT DOWN, and FOOT DOWN functions all the way down, while making sure to keep refilling reservoir (2) with light grade mineral oil as necessary.

(12) Connect hose (B) to up functions shuttle valve (4).

(13) Repeat steps 7 thru 12 until oil being removed is clear and contains no dirt particles.

(14) Run all the functions up and down until all air is purged from the hydraulic system.

(15) Lower all functions; then check oil level and add or remove oil as necessary (Refer to para 4.3).

(16) Install motor cover assembly (Refer to para 4.2).

(17) Dispose of used oil in accordance with local regulations.

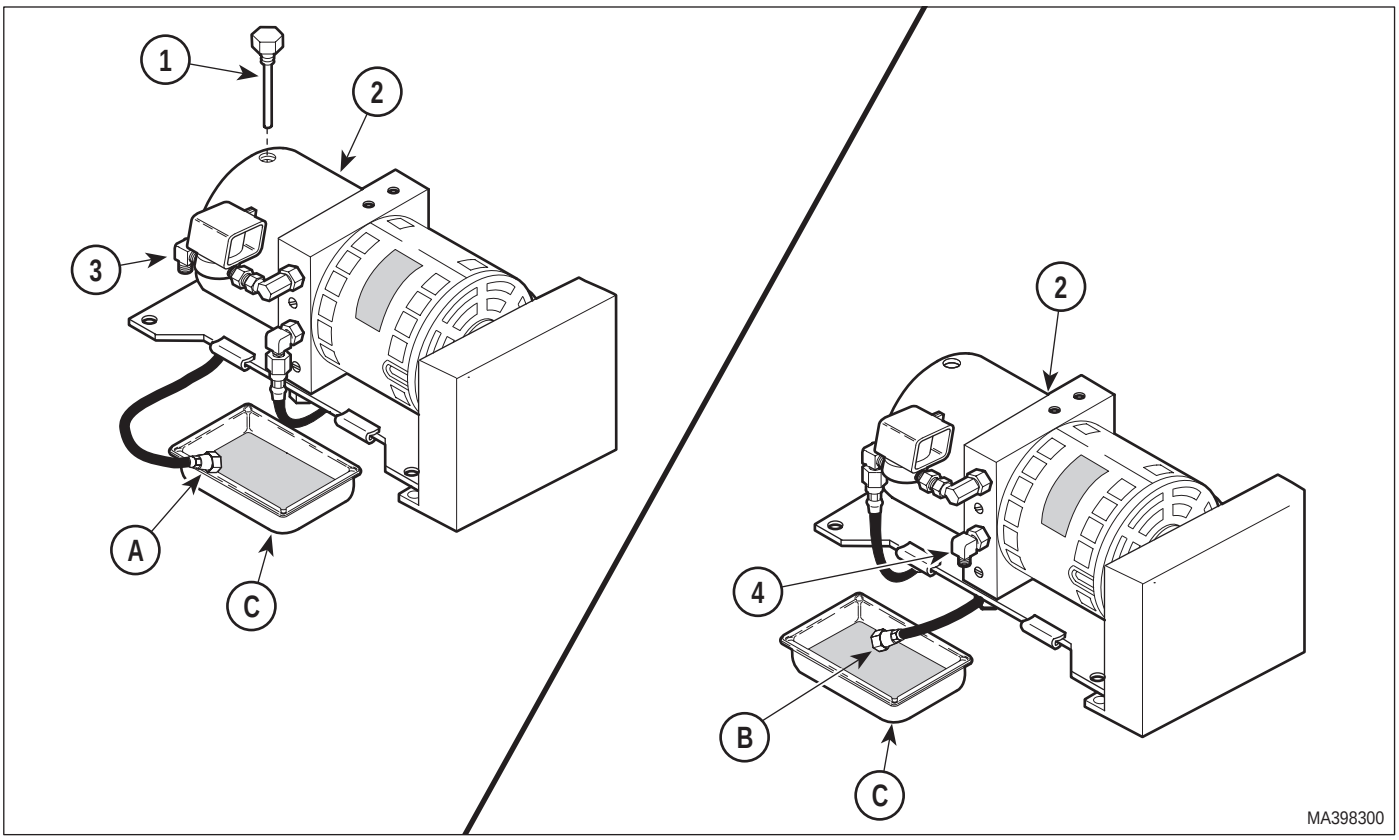

Figure 4-32. Hydraulic System Flushing Procedure

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SECTION V
SCHEMATICS AND DIAGRAMS

5.1 Electrical Schematics / Wiring Diagrams

Figures 5-1 thru 5-2 illustrate the logic/current flow and wiring connections between the electrical components in the table. Record serial number of table being worked on in order to determine which electrical schematic or wiring diagram to use.

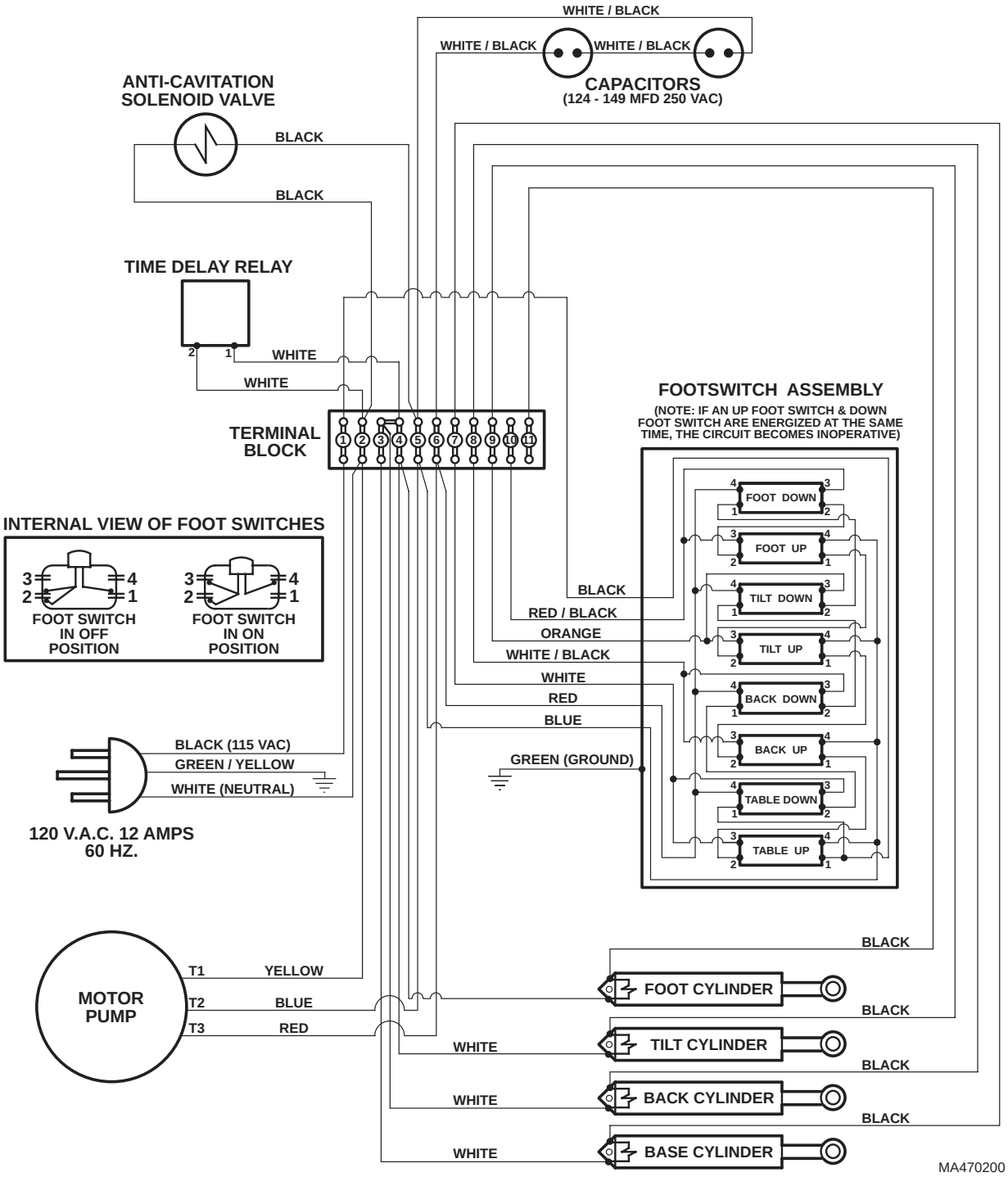

Figure 5-1. Wiring Diagram

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SECTION V
SCHEMATICS AND DIAGRAMS

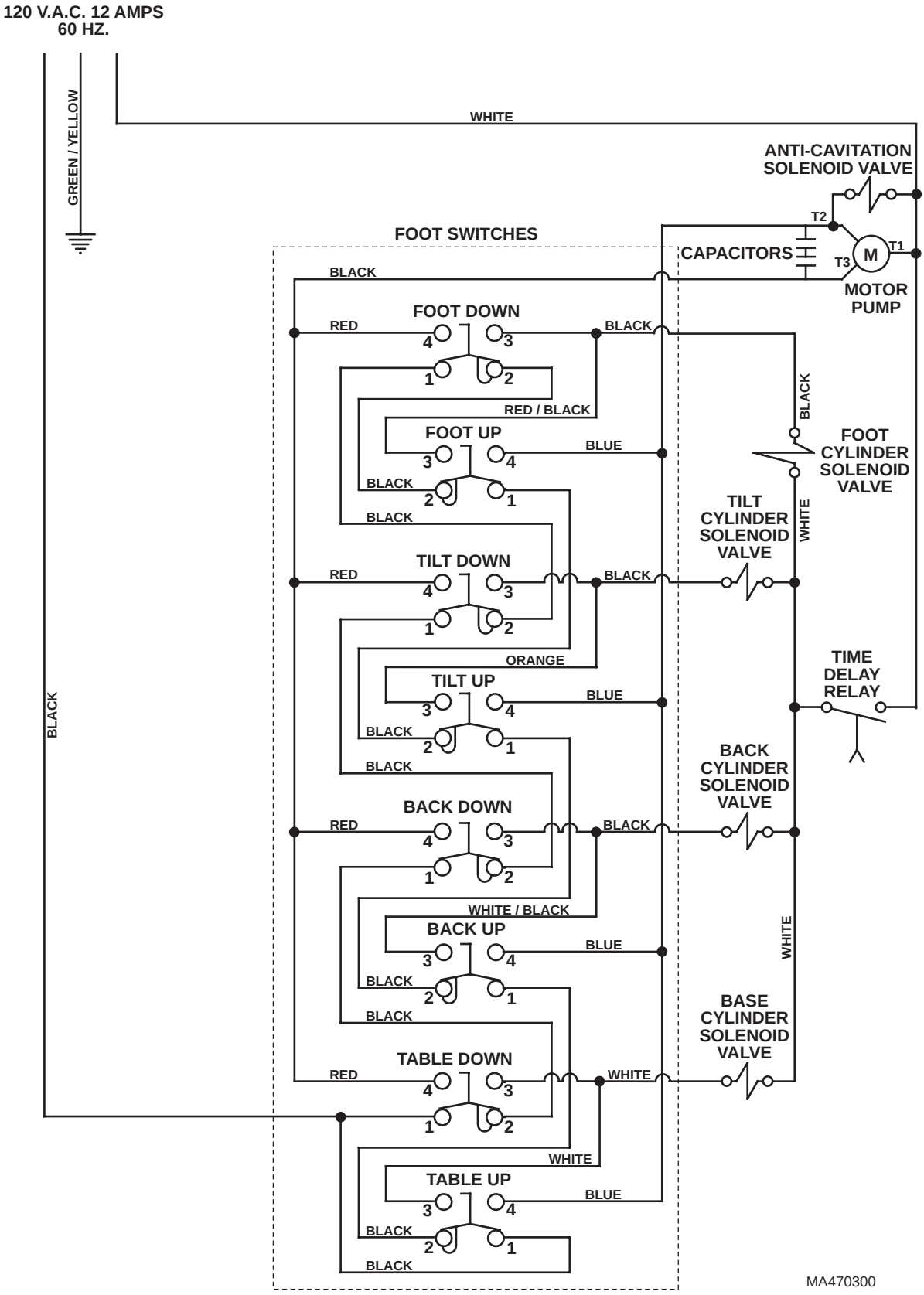

Figure 5-2. Electrical Schematic

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5.2 Hydraulic Flow Diagrams

Figure 5-3 illustrates the hydraulic oil flow through the table when an up function is selected. Figure 5-4 illustrates the hydraulic oil flow through the table when a down function is selected.

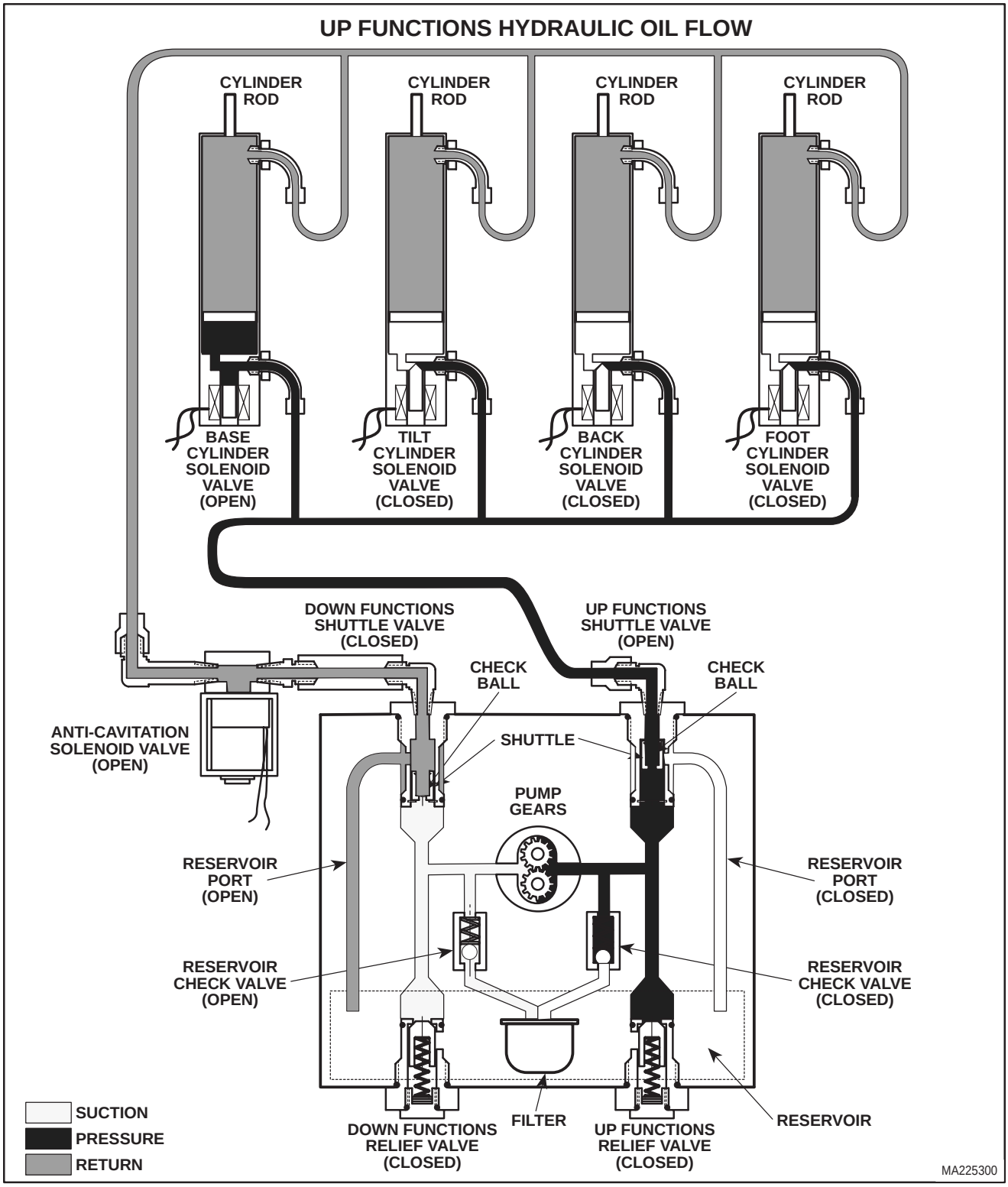

Figure 5-3. Up Functions Hydraulic Flow Diagram

SECTION V
SCHEMATICS AND DIAGRAMS

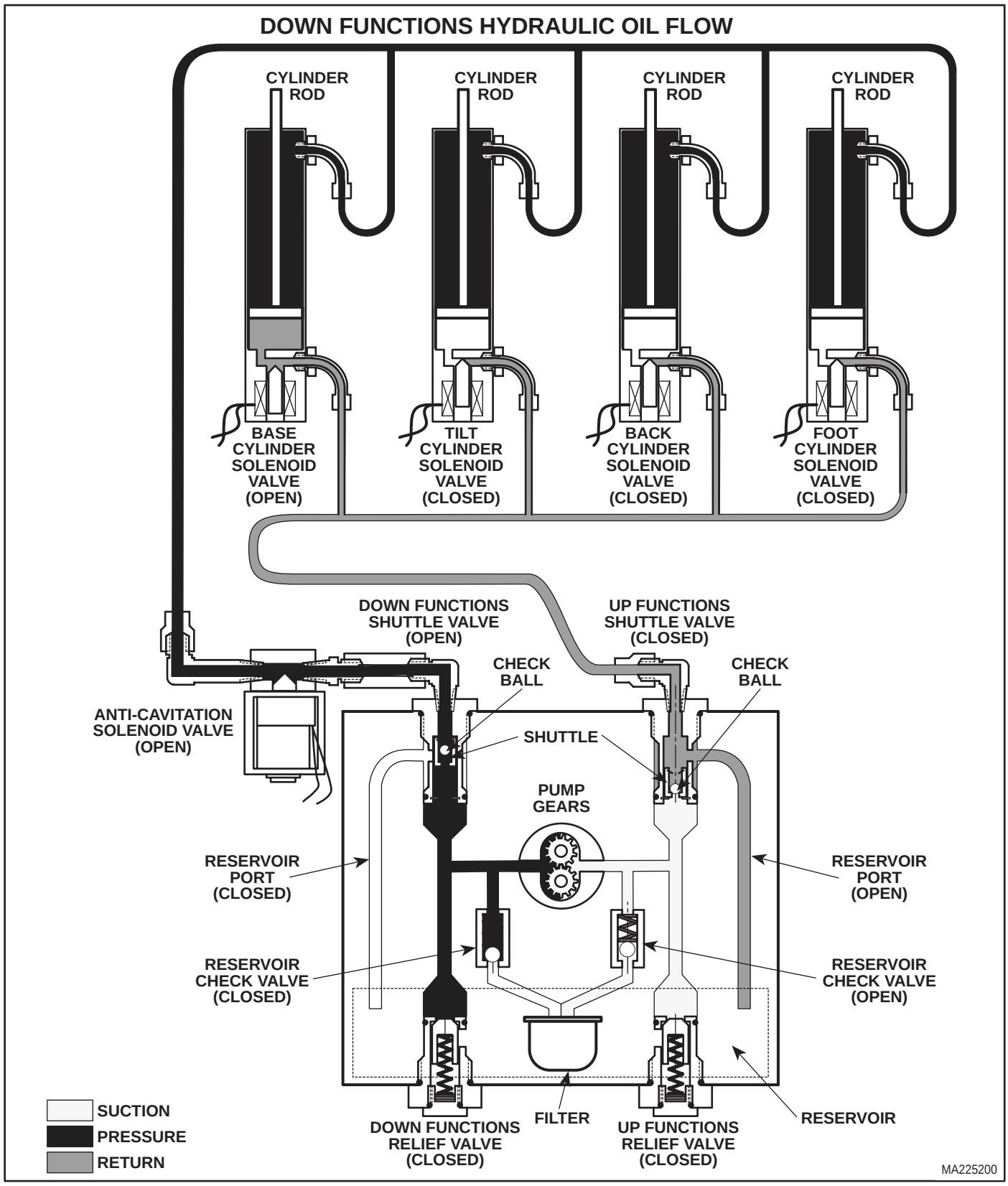

Figure 5-4. Down Functions Hydraulic Flow Diagram

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SECTION VI
PARTS LIST

6.1 Introduction

The illustrated parts list provides information for identifying and ordering the parts necessary to maintain the unit in peak operating condition. Refer to paragraph 1.5 for parts ordering information.

The parts list also illustrates disassembly and assembly relationships of parts.

6.2 Description of Columns

The *Item* column of the parts list gives a component its own unique number. The same number is given to the component in the parts illustration. This allows a part number of a component to be found if the technician can visually spot the part on the illustration. The technician simply finds the component in question on the illustration and notes the item number of that component. Then, he finds that item number in the parts list. The row corresponding to the item number gives the technician the part number, a description of the component, and quantity of parts per subassembly. Also, if a part number is known, the location of that component can be determined by looking for the item number of the component on the illustration.

The *Part No.* column lists the MIDMARK part number for that component.

The *Description* column provides a physical description of the component.

The *Qty.* column lists the number of units of a particular component that is required for the subassembly. The letters “AR” denote “as required” when quantities of a particular component cannot be determined, such as: adhesive.

Bullets { • } in the *Part No.* column and the *Description* column show the indenture level of a component. If a component does not have a bullet, it is a main component of that illustration. If a component has a bullet, it is a subcomponent of the next component listed higher in the parts list than itself that does not have a bullet. Likewise, if a component has two bullets, it is a subcomponent of the next component listed higher in the parts list than itself that has only one bullet.

6.3 Torque Specifications and Important Assembly Notes

When specific assembly torque specifications, measurements, or procedures have been identified, by our engineering department, as required to assure proper function of the unit, those torque specifications measurements, and procedures will be noted on the parts illustrations. Adherence to these requirements is essential.

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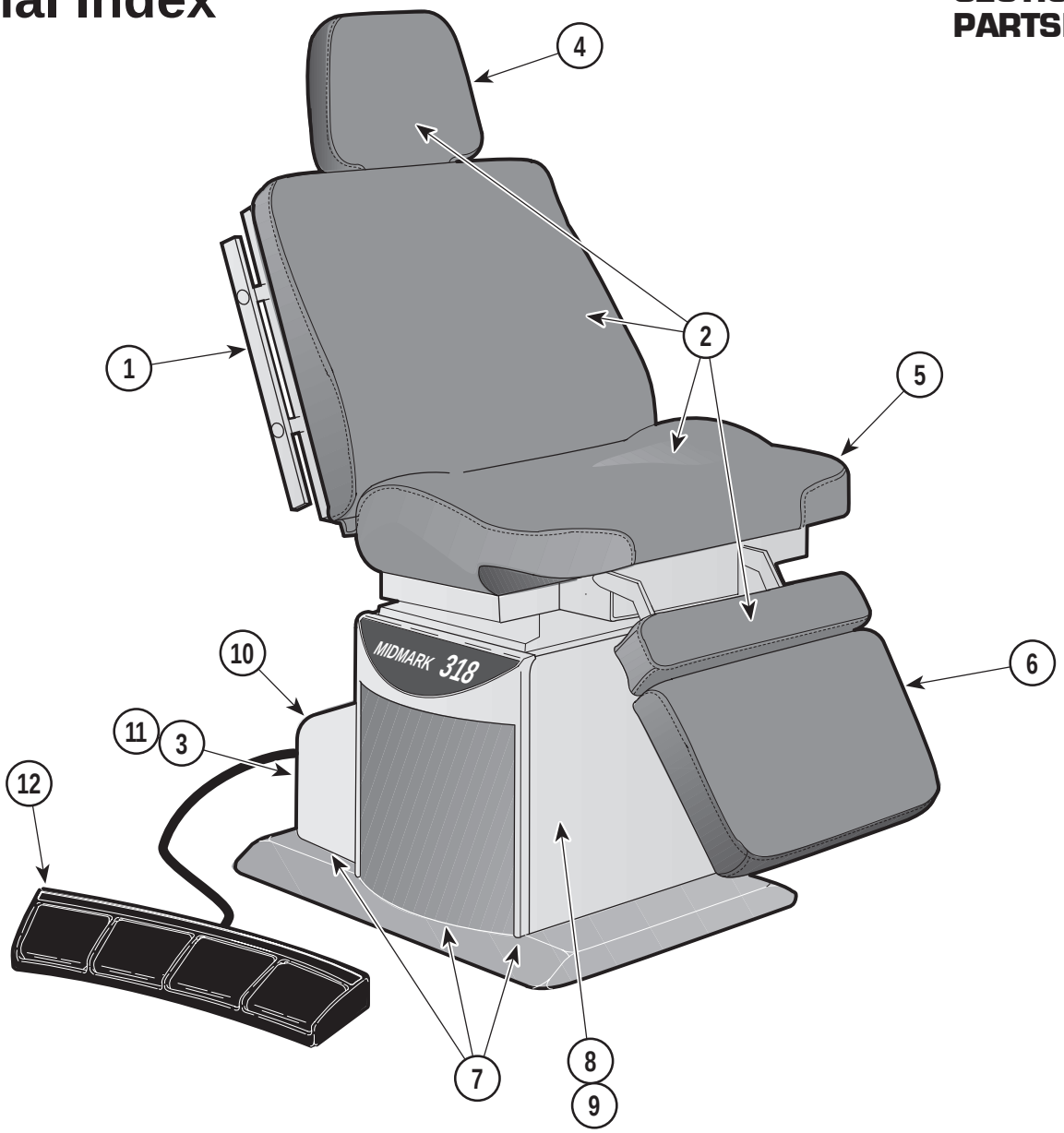
Pictorial Index



MA470800

Used on units with Serial Number KZ-1000

Item	Part No.	Description	Page
	318-001	Oral Surgery Table 115 V. (Serial Number Prefix KZ-****)	Ref
1	•	• Back Components	6-4
2	•	• Upholstery Set - Thermoform	6-6
	•	• Upholstery Set - Narrow	6-7
3	•	• Hydraulic System	6-10
4	•	• Headrest Assembly	6-11
5	•	• Seat Components	6-12
6	•	• Footboard Components	6-15
7	•	• Base Covers And Enclosures	6-16
8	•	• Base Mechanical Components	6-17
9	• •	• • Base Slide Assembly	6-18
10	•	• Base Electrical Comp.-Domestic	6-19
	•	• Base Electrical Comp.-Export	6-20
11	• •	• • Motor / Pump Assembly	6-21
12	•	• Foot Control Assembly	6-22

Item	Part No.	Description	Page
		OPTIONAL ACCESSORIES	
		Refer to MEDICAL ACCESSORY BOOK {004-0096-00}	
13	• 9A43006	• Chair Arm	9A43
14	• 9A51001	• Facial Pad	9A51
15	• 9A60001	• Restraint Belts	9A60
16	• 9A75001	• Caster Base Assy.	9A75
17	• 9A77001	• I.V. Pole	9A77
18	• 9A81001	• Articulating Armboard	9A81
19	• 9A82001	• Special Procedures Armboard	9A82
20	• 9A83001	• Instrument Tray	9A83
21	• 9A157001	• Side Rail Assy.	9A157
22	• 9A179002	• Fixed Armboard	9A179
23	• 9A18400*	• Base Rail / Welch Allen Brkt. @	9A184
24	• 9A197001	• Swivel Wheel Caster Accessory	9A197
25	• 9A199001	• Round Headrest	9A198
26	• 9A199001	• Special Procedures Headrest	9A199
27	• 9A200001	• Color Panels (Not Shown)	6-4 / 6-7
28	• 9A221001	• Wrist Support Single	9A221

Always Specify Model & Serial Number

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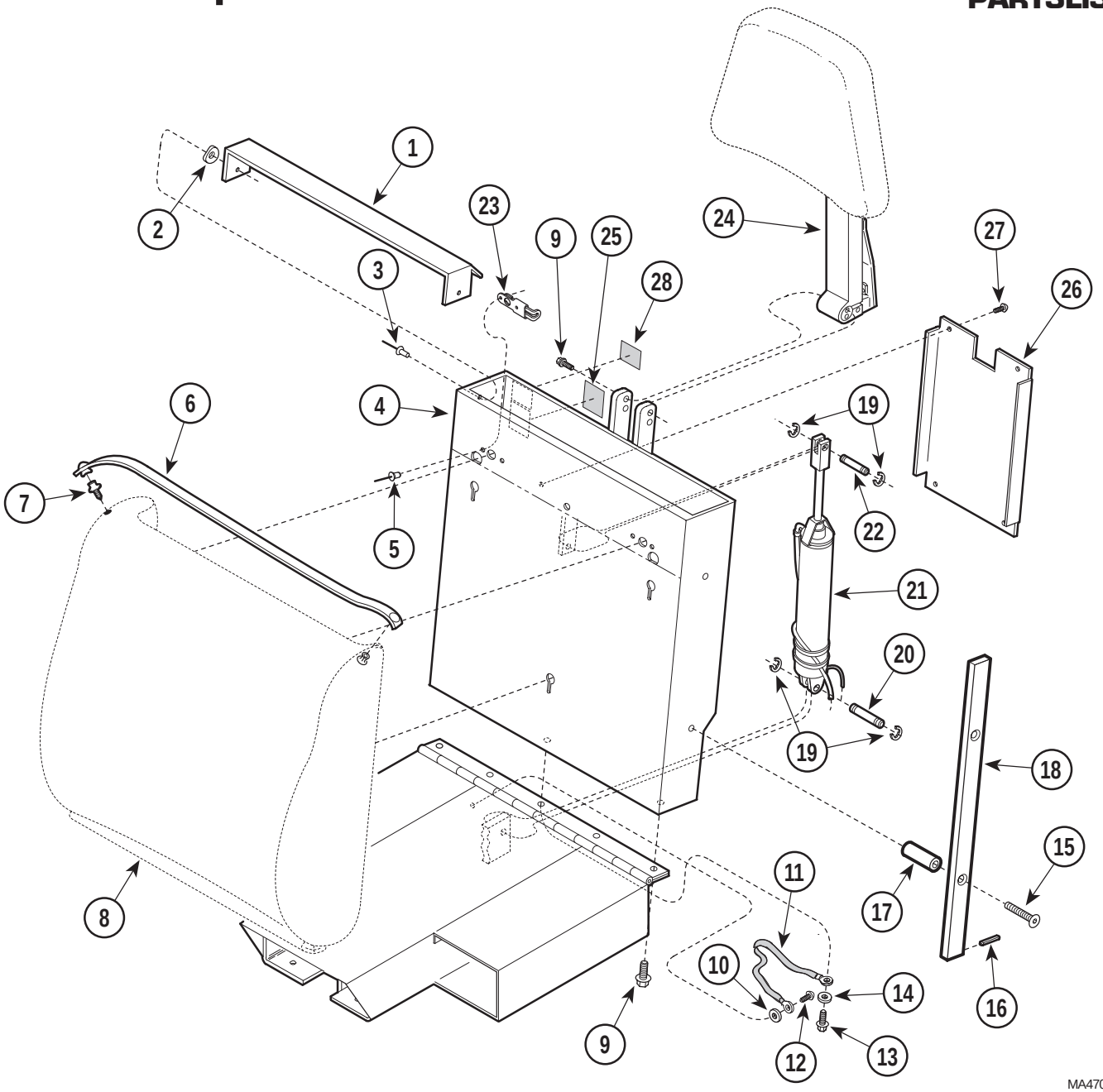
Back Components



MA470900

Item	Part No.	Description	Qty.
1	050-0472-40	Paper Cover	1
2	045-0001-12	Curved Washer	2
3	042-0010-03	Pop Rivet	2
4	030-0912-40	Back Weldment	1
5	042-0010-11	Pop Rivet	4
6	002-0146-00	Paper Tear Strip Set (24")	1
7	016-0022-00	Stud	2
8		Upholstered Back Section (Refer to "Upholstery Set" Elsewhere)	1
9	040-0250-88	Screw	6
10	045-0001-31	Lockwasher	1
11	015-0082-02	Grounding Braid	1
12	040-0010-04	Screw	1
13	040-0250-10	Screw	1
14	045-0001-05	Lockwasher	1
15	040-0375-15	Screw	4
16	042-0001-02	Roll Pin	2
17	057-0057-42	Side Rail Mount	4
18	051-0112-00	Side Rail	2
19	042-0007-00	E-Ring	4
20	042-0006-01	Clevis Pin	1
21		Back Cylinder (Refer to "Hydraulic System" Elsewhere)	1
22	042-0006-00	Clevis Pin	1
23	016-0542-00	Slide Latch Assembly	2
24		One Arm Headlock Assembly (Refer to "Headrest Assembly" Elsewhere)	1
25	061-0117-00	Standards Label	1
26	050-0872-40	Back Cover	1
27	040-0006-06	Screw	4
28		Serial Number	1

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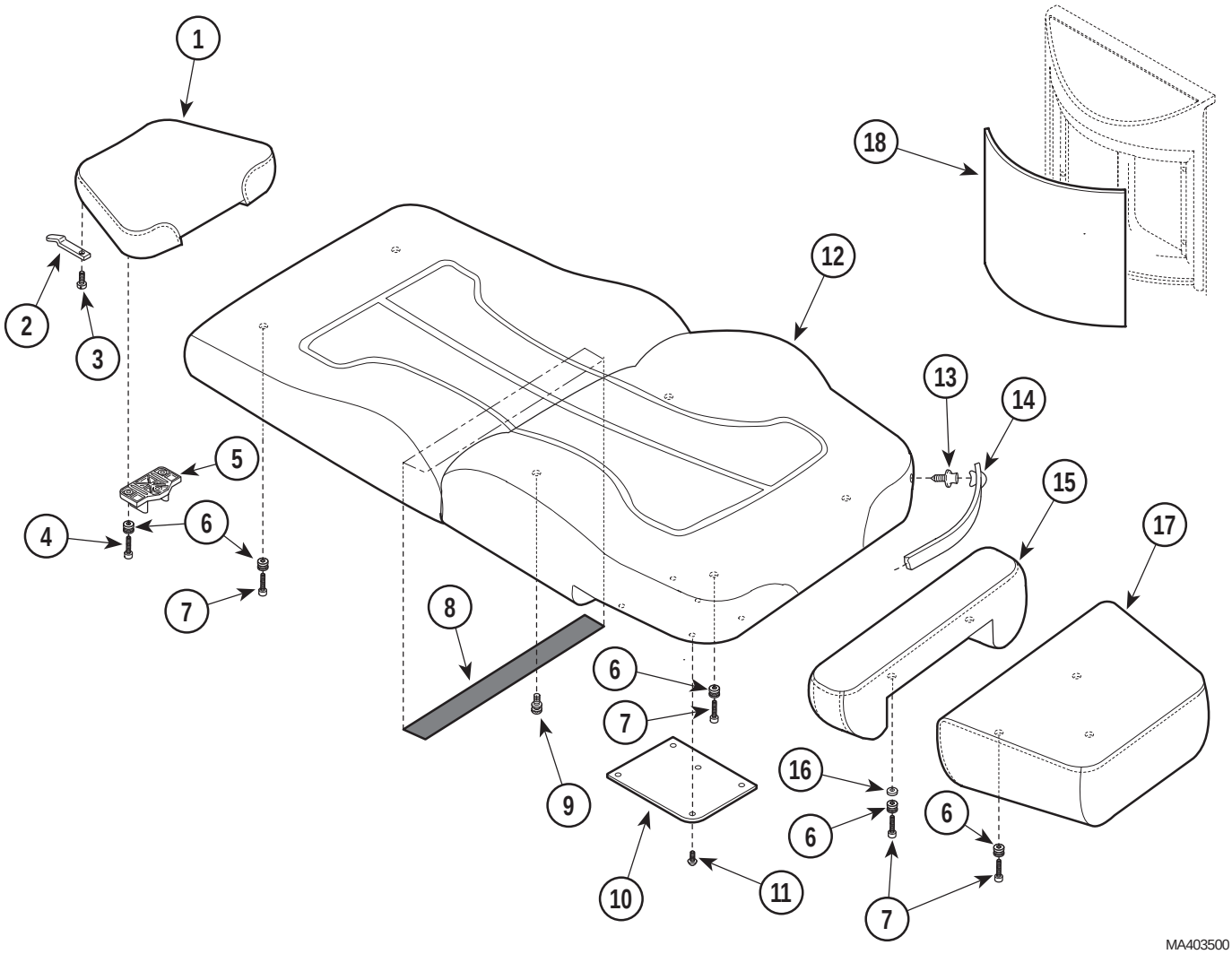
Upholstery Set - Thermo



MA403500

Item	Part No.	Description	Qty.
	002-0557-***-***	Upholstery Set-Thermo (Includes Items 1 thru 18) {Specify Color}	1
1	• 028-0458-XX	• Headrest {Specify Color}	1
2	• 058-0001-03	• Bag Clip	2
3	• 040-0006-27	• Screw	2
4	• 040-0010-13	• Screw (Apply Loctite #042-0024-02)	3
5	• 053-0582-01	• Headboard Pillow Mount	1
6	• 042-0137-00	• Upholstery Latch Stud	12
7	• 040-0010-104	• Screw	9
8	• 053-0105-26	• Velcro Tape	1
9	• 042-0120-00	• Upholstery Mount Stud (Apply Loctite #042-0024-02)	3
10	• 050-3102-40	• Seat Cover	2
11	• 040-0006-00	• Screw	10
12	• 028-0471-XX	• Back/Seat Section {Specify Color}	1
13	• 016-0022-00	• Stud	4
14	• 002-0146-00	• Paper Tear Strip Set	1
15	• 028-0461-XX	• Legrest-Styled {Specify Color}	1
16	• 057-0379-00	• Spacer	2
17	• 028-0457-XX	• Footrest-Styled {Specify Color}	1
18	• 9A2000XX	• Panel Insert Set {Specify Color}	AR

The following are the current stock upholstery colors for upholstery kits.

Part No.	Upholstery Color	Qty.
-*-103-***	Slate Grey	AR
-*-095-***	Sand Grey	AR
-*-096-***	Iris Blue	AR
-*-100-***	Nile Green	AR
-*-101-***	Royal Lavander	AR
-*-102-***	Terra Rosa	AR

The following are current stock panel colors for upholstery kits.

Part No.	Panel Color	Qty.
-*-***-014	Slate Grey	AR
-*-***-031	Sand Grey	AR
-*-***-033	Nile Green	AR
-*-***-034	Royal Lavander	AR
-*-***-035	Terra Rosa	AR
-*-***-036	Iris Blue	AR

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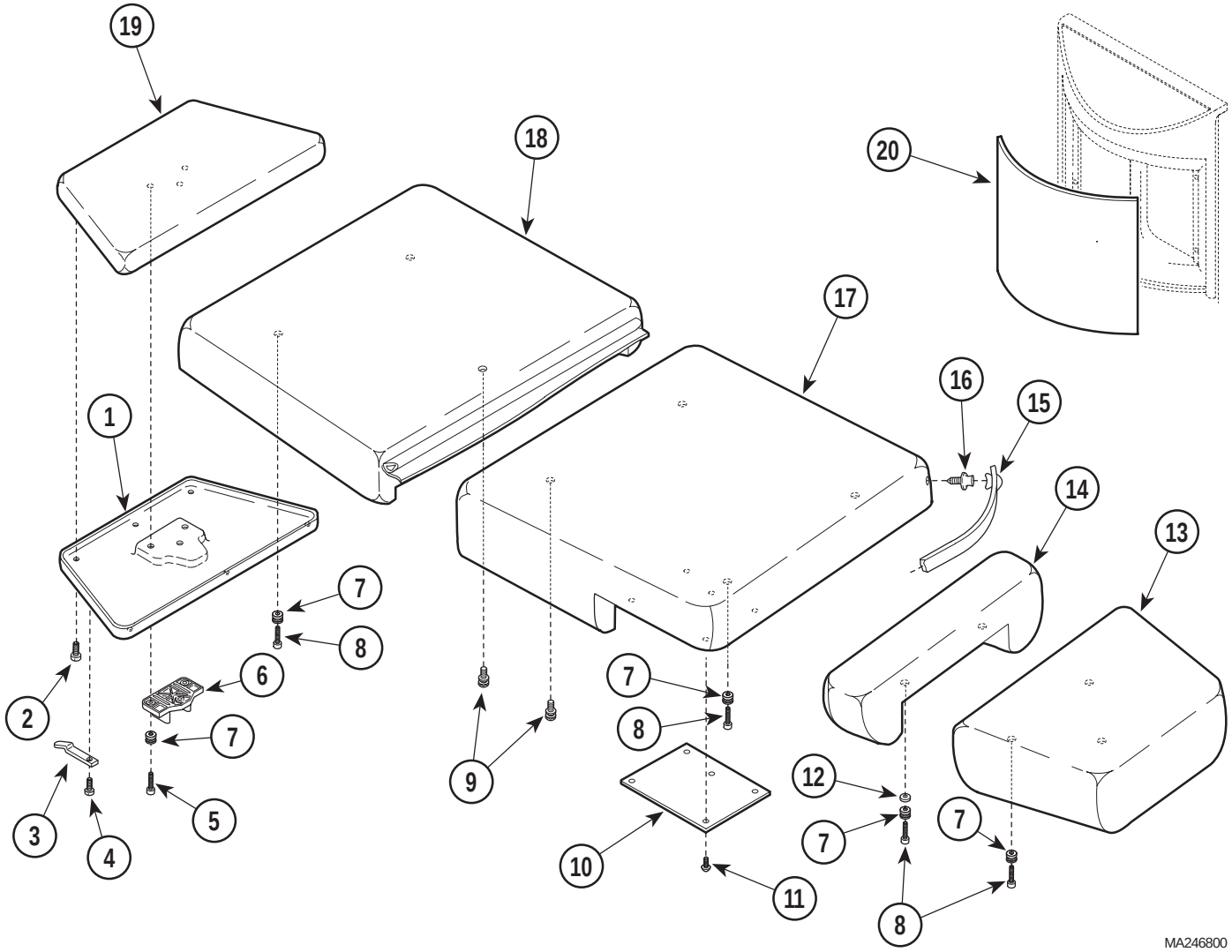
Upholstery Set - Narrow



MA246800

Item	Part No.	Description	Qty.
	002-0559-***-***	Upholstery Set-Narrow Width (Incl. Items 1 thru 20) {Specific Color}	1
1	• 053-0628-01	• Headrest Cover	1
2	• 040-0006-20	• Screw	6
3	• 058-0001-03	• Bag Clip	2
4	• 040-0006-00	• Screw	2
5	• 040-0010-78	• Screw (Apply Loctite # 042-0024-00)	3
6	• 053-0582-01	• Headboard Pillow Mount	1
7	• 042-0137-00	• Upholstery Latch Stud	12
8	• 040-0010-104	• Screw	9
9	• 042-0120-00	• Upholstery Mount Stud (Apply Loctite # 042-0024-00)	3
10	• 050-3103-40	• Seat Cover - R.H. (Shown)	1
	• 050-3103-41	• Seat Cover - L.H.	1
11	• 040-0006-00	• Screw	10
12	• 057-0379-00	• Spacer	2
13	• 028-0389-XX	• Footrest {Specify Color}	1
14	• 028-0123-XX	• Legrest {Specify Color}	1
15	• 029-0017-02	• Paper Tear Strip Set (24")	1
16	• 016-0022-00	• Stud	4
17	• 028-0391-XX	• Seat Section-Narrow {Specify Color}	1
18	• 028-0390-XX	• Back Section-Narrow {Specify Color}	1
19	• 028-0395-XX	• Headrest {Specify Color}	1
20	• 9A2000XX	• Panel Insert Set {Specify Color}	1

The following are the current stock upholstery colors for upholstery kits.

Part No.	Upholstery Color	Qty.
-*-059-***	Slate Grey	AR
-*-090-***	Sand Grey	AR
-*-091-***	Iris Blue	AR
-*-092-***	Nile Green	AR
-*-093-***	Royal Lavander	AR
-*-094-***	Terra Rosa	AR

The following are current stock panel colors for upholstery kits.

Part No.	Panel Color	Qty.
-*-***-014	Slate Grey	AR
-*-***-031	Sand Grey	AR
-*-***-033	Nile Green	AR
-*-***-034	Royal Lavander	AR
-*-***-035	Terra Rosa	AR
-*-***-036	Iris Blue	AR

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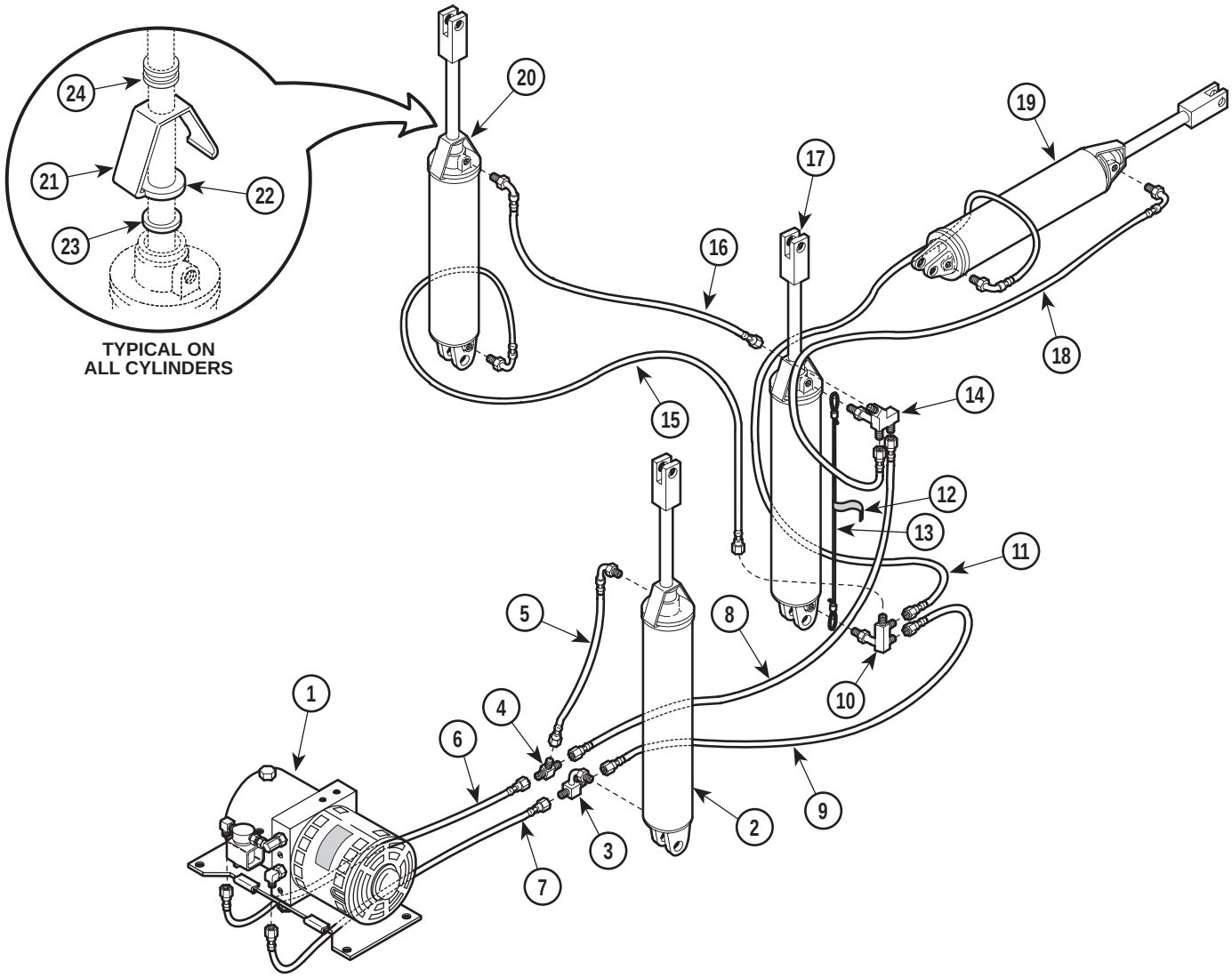
Hydraulic System



MA241500

Item	Part No.	Description	Qty.
1	002-0444-00	Motor / Pump Components (See Breakdown Elsewhere)	Ref
2	002-0001-00	Base Cylinder Kit	1
3	014-0135-00	Base Tee	1
4	014-0098-00	Union Tee	1
5	002-0120-00	Hose Assembly Kit	1
6	002-0117-00	Hose Assembly Kit	1
7	002-0119-00	Hose Assembly Kit	1
8	002-0122-00	Hose Assembly Kit	1
9	002-0121-00	Hose Assembly Kit	1
10	014-0136-00	Tilt Power Manifold	1
11	002-0123-00	Hose Assembly Kit	1
12	061-0113-00	Safety Cable Label	1
13	016-0161-00	Safety Cable	1
14	014-0137-00	Return Manifold	1
15	002-0125-00	Hose Assembly Kit	1
16	002-0126-00	Hose Assembly Kit	1
17	002-0002-00	Tilt Cylinder Kit	1
18	002-0124-00	Hose Assembly Kit	1
19	002-0003-00	Foot Cylinder Kit	1
20	002-0346-00	Back Cylinder KIt	1
21	025-0032-00	Rod Wiper Bracket	AR
22	054-0109-00	Felt Wiper (1")	AR
23	054-0108-00	Felt Wiper (11/16")	AR
24	053-0226-03	Snap-in Nyliner Bearing	AR
25	015-0013-00	Cable Tie (Not Shown)	6
26	015-0013-02	Cable Tie (Not Shown)	4
27	015-0016-00	Cable Tie (Not Shown)	9
28	015-0017-00	Cable Tie (Not Shown)	1

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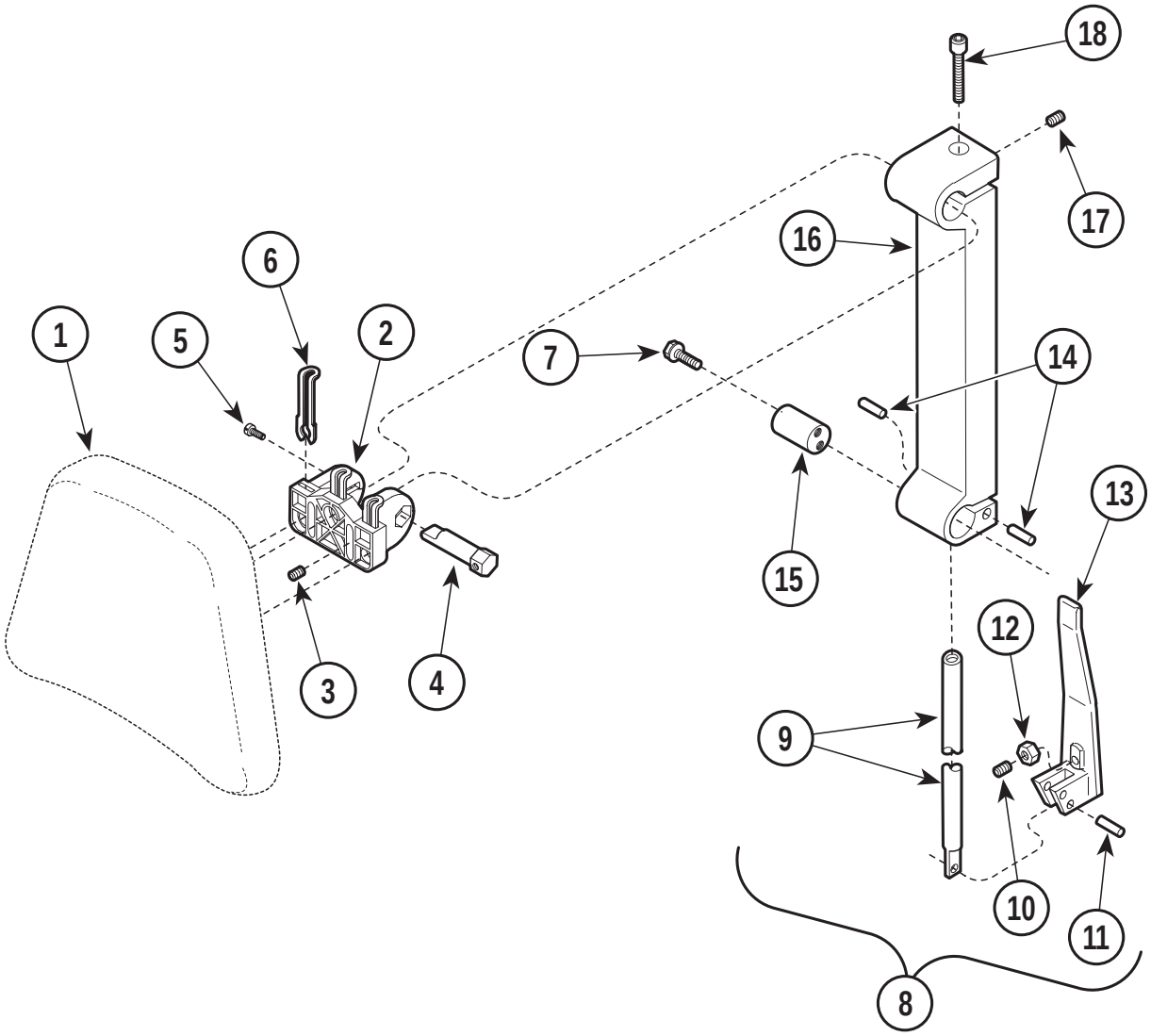
Headrest Assembly



MA471100

Used on units with Serial Number KZ1000 thru KZ1023

Item	Part No.	Description	Qty.
1		Upholstered Headrest {Specify Color} (Refer to "Upholstery Set" Elsewhere)	1
2	053-0581-01	Headboard Pivot Mount	1
3	040-0250-26	Set Screw (Apply Loctite Loctite #042-0024-00)	1
4	057-0375-00	Headboard Pivot Pin	1
5	040-0250-79	Screw	1
6	016-0542-01	Slide Latch	3
7	• 040-0250-88	• Screw (Apply Loctite #042-0025-00)	4
8	• 029-1487-01	• One Arm Headlock Assembly (Includes Items 9 thru 18)	1
9	• • 051-0080-00	• • Draw Bar	1
10	• • 040-0250-70	• • Set Screw	1
11	• • 042-0002-08	• • Roll Pin	1
12	• • 041-0250-12	• • Jam Nut	2
13	• • 030-0123-42	• • Head Pivot Handle Weldment	1
14	• • 042-0002-04	• • Roll Pin	2
15	• • 057-0048-00	• • Pivot Bar	1
16	• • 030-0141-44	• • Headlock Weldment	1
17	• • 040-0010-14	• • Set Screw	1
18	• • 040-0250-11	• • Screw	1

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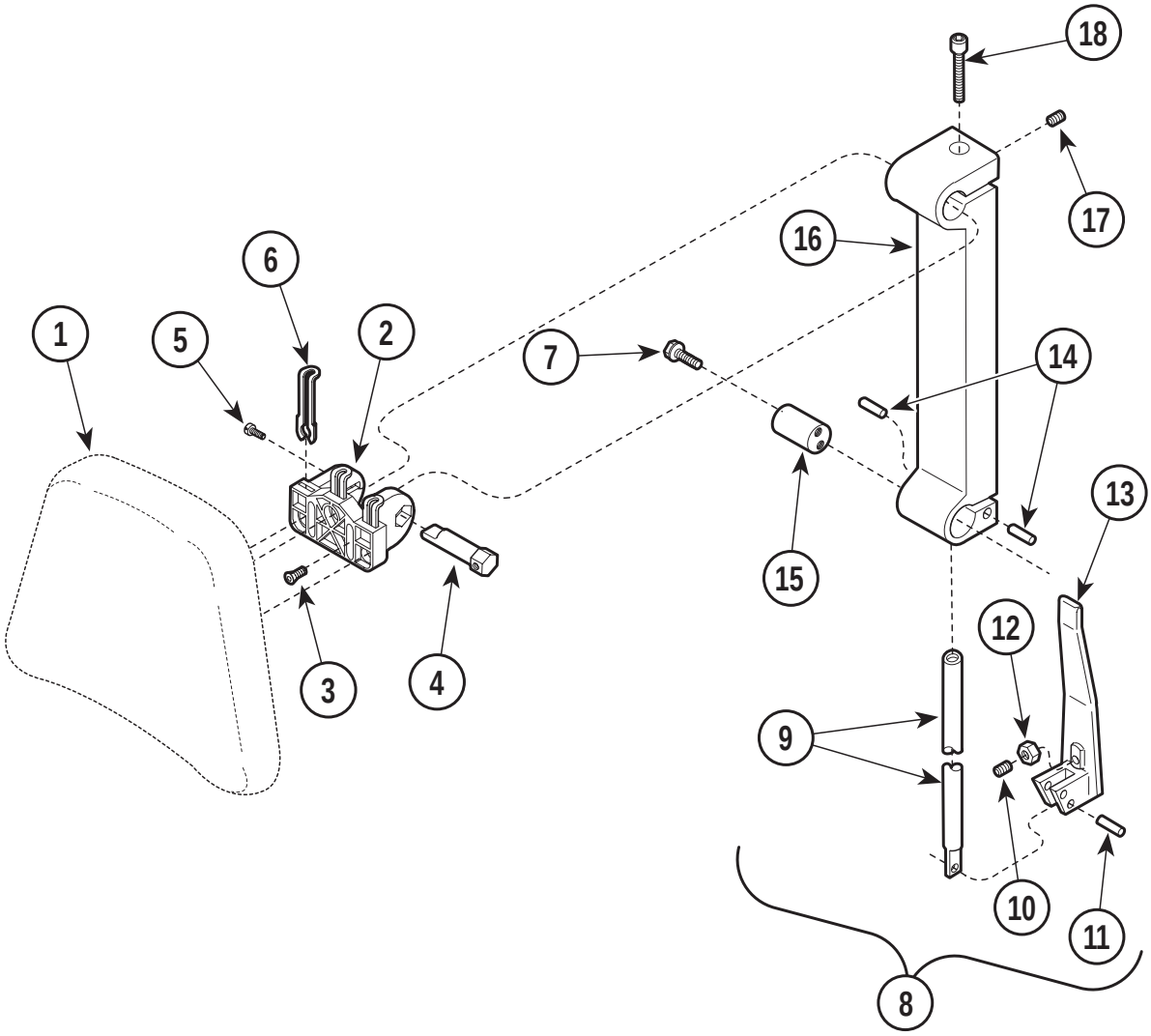
Headrest Assembly



MA471101

Used on units with Serial Number KZ1023 thru Present

Item	Part No.	Description	Qty.
1		Upholstered Headrest {Specify Color} (Refer to "Upholstery Set" Elsewhere)	1
2	053-1047-01	Headboard Pivot Mount	1
3	040-0008-35	Screw (Apply Loctite Loctite #042-0024-00)	1
4	057-0528-00	Headboard Pivot Pin	1
5	040-0250-79	Screw	1
6	016-0542-01	Slide Latch	3
7	• 040-0250-88	• Screw (Apply Loctite #042-0025-00)	4
8	• 029-1487-01	• One Arm Headlock Assembly (Includes Items 9 thru 18)	1
9	• • 051-0080-00	• • Draw Bar	1
10	• • 040-0250-70	• • Set Screw	1
11	• • 042-0002-08	• • Roll Pin	1
12	• • 041-0250-12	• • Jam Nut	2
13	• • 030-0123-42	• • Head Pivot Handle Weldment	1
14	• • 042-0002-04	• • Roll Pin	2
15	• • 057-0048-00	• • Pivot Bar	1
16	• • 030-0141-44	• • Headlock Weldment	1
17	• • 040-0010-14	• • Set Screw	1
18	• • 040-0250-11	• • Screw	1

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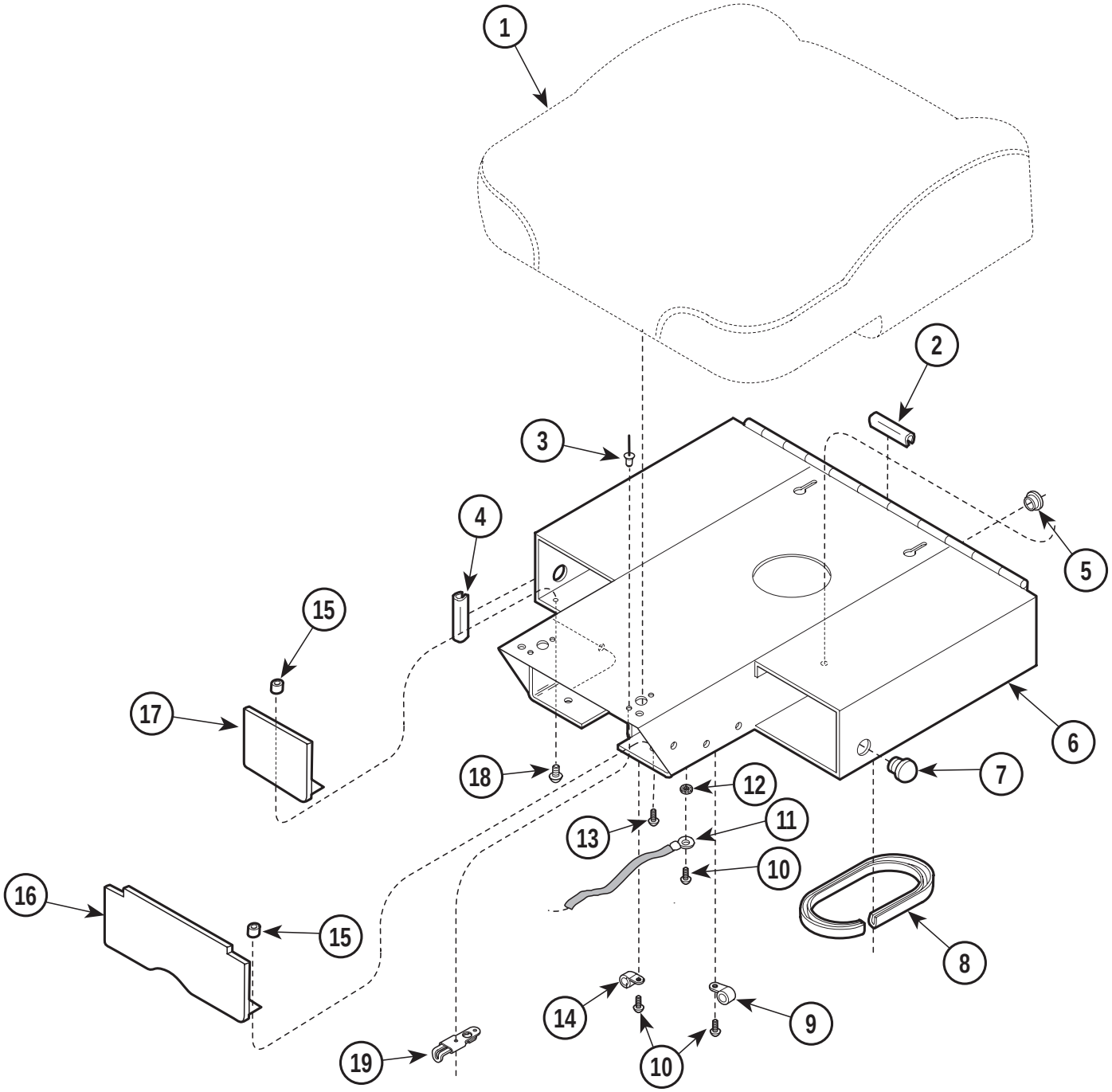
Seat Components



MA471200

Item	Part No.	Description	Qty.
1		Upholstery Section (Refer to "Upholstery Set" Elsewhere)	1
2	016-0140-00	Trim Lock (Specify Length - 2")	2
3	042-0010-11	Pop Rivet	4
4	016-0140-00	Trim Lock (Specify Length - 1 1/2")	2
5	053-0068-06	Snap Bushing	2
6	030-1042-40	Seat Weldment	1
7	053-0050-00	Hole Plug	2
8	016-0162-00	Trim Lock (Specify Length - 11")	1
10	015-0014-00	Wire Clip	1
11	040-0010-04	Screw	3
11	015-0082-01	Ground Braid	1
12	040-0001-31	Lockwasher	1
13	040-0010-23	Screw	2
14	015-0001-00	Wire Clip	1
15	042-0045-01	Nutsert	6
16	050-3911-40	Filler Hut	1
17	050-4121-40	Stirrup Cover	2
18	040-0010-34	Screw	4
19	016-0542-00	Slide Latch Assembly	2

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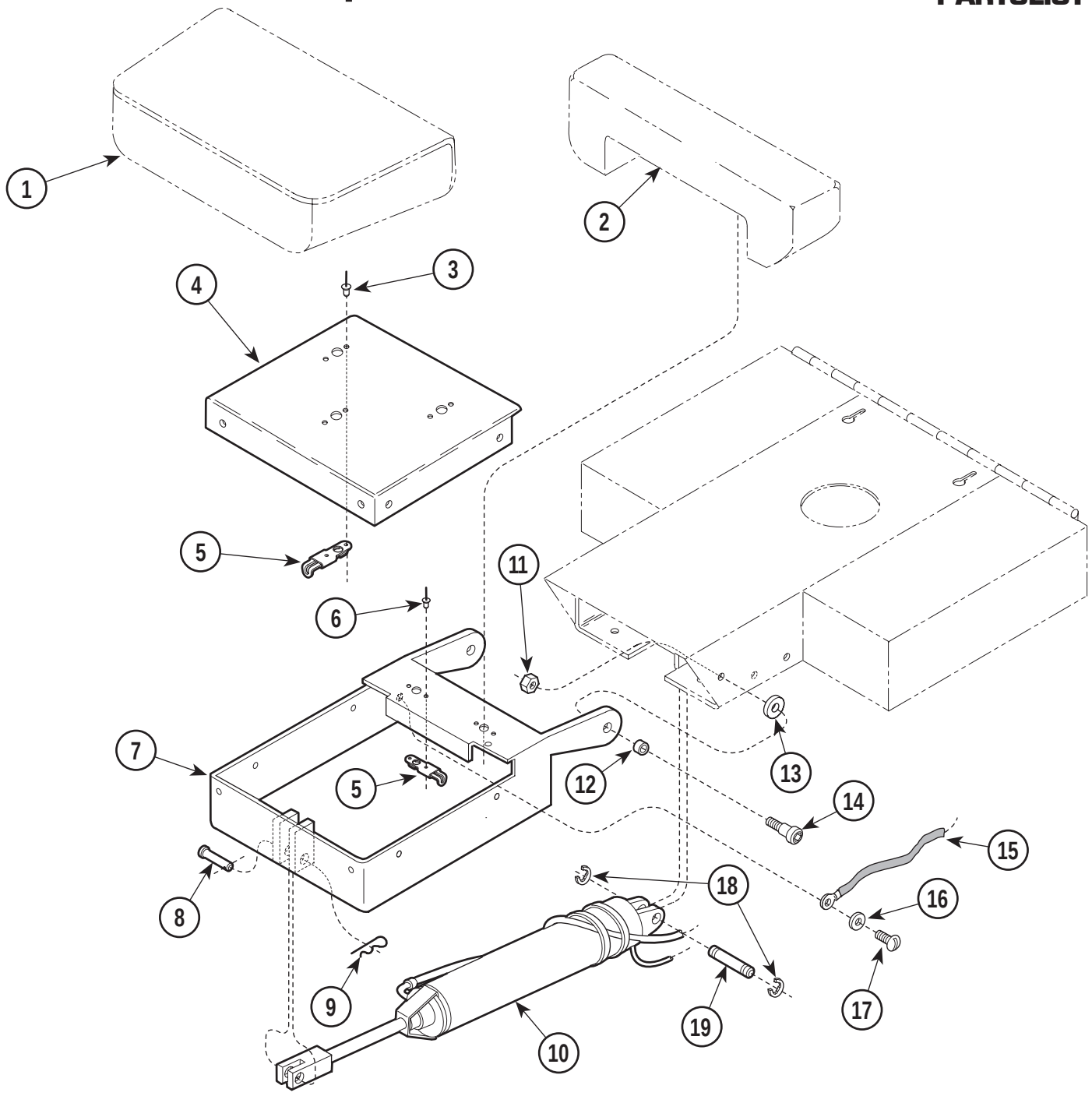
Footboard Components



MA471300

Item	Part No.	Description	Qty.
1		Upholstered Foot Rest (Refer to "Upholstery Set" Elsewhere)	Ref
2		Upholstered Leg Rest (Refer to "Upholstery Set" Elsewhere)	Ref
3	042-0010-11	Pop Rivet	6
4	050-4120-40	Foot Cover	1
5	016-0542-00	Slide Latch Assembly	5
6	042-0010-13	Pop Rivet	4
7	030-0886-41	Foot Extension Weldment	1
8	042-0005-03	Clevis Pin	1
9	042-0004-00	Pin Clip	1
10		Foot Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
11	041-0375-05	Jam Nut	2
12	016-0076-00	Bushing	2
13	045-0004-00	Washer	2
14	042-0014-00	Shoulder Screw	2
15	015-0082-01	Ground Braid	1
16	045-0001-31	Lockwasher	1
17	040-0010-04	Screw	1
18	042-0007-00	E-Ring	2
19	042-0006-01	Clevis Pin	1

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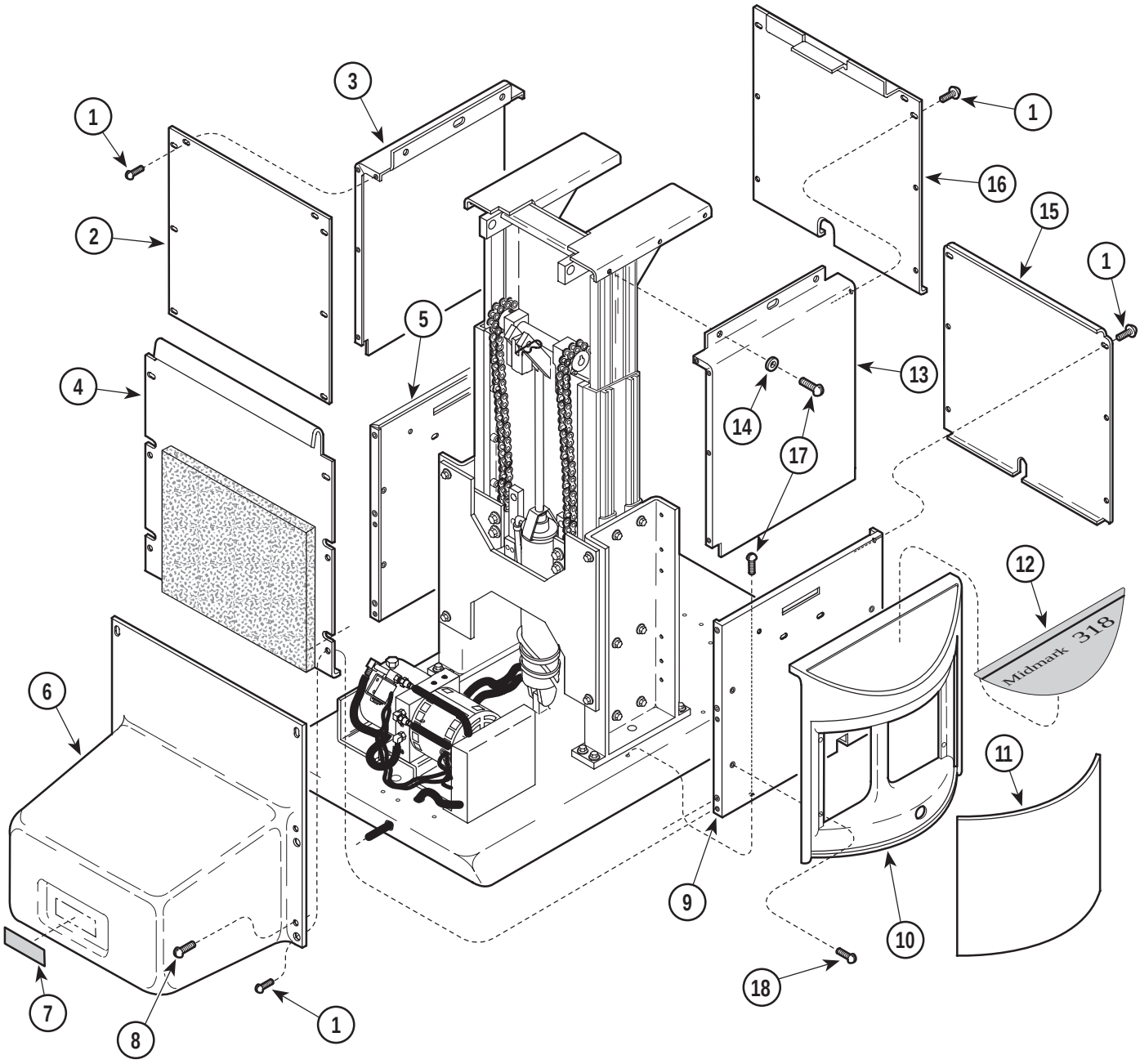
Base Covers And Enclosures



MA471000

Item	Part No.	Description	Qty.
1	040-0008-29	Screw	24
2	050-2677-40	Back Inner Shroud	1
3	050-0947-41	L.H. Inner Shroud (Less Nutserts)	1
	• 042-0045-02	• Nutsert	8
4	029-1585-01	Back Outer Shroud Assembly	1
5	050-2639-41	L.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
6	029-1586-01	Motor Cover Assembly	1
7	061-0033-00	Caution Label	1
8	040-0010-34	Screw	6
9	050-2639-40	R.H. Outer Shroud (Less Nutserts)	1
	• 042-0045-01	• Nutsert	7
	• 042-0045-02	• Nutsert	4
10	053-0516-01	Side Panel	2
11	050-2483-01	Side Panel Insert (Refer to "Upholstery and Panels" Elsewhere)	Ref.
12	061-0640-05	Nameplate Label - 318	2
13	050-0947-40	R.H. Inner Shroud (Less Nutsert)	1
	• 042-0045-02	• Nutsert	8
14	045-0001-15	Washer	6
15	050-2617-40	Front Outer Shroud	1
16	050-0463-40	Front Inner Shroud	1
17	040-0010-47	Screw	12
18	040-0010-23	Screw	8

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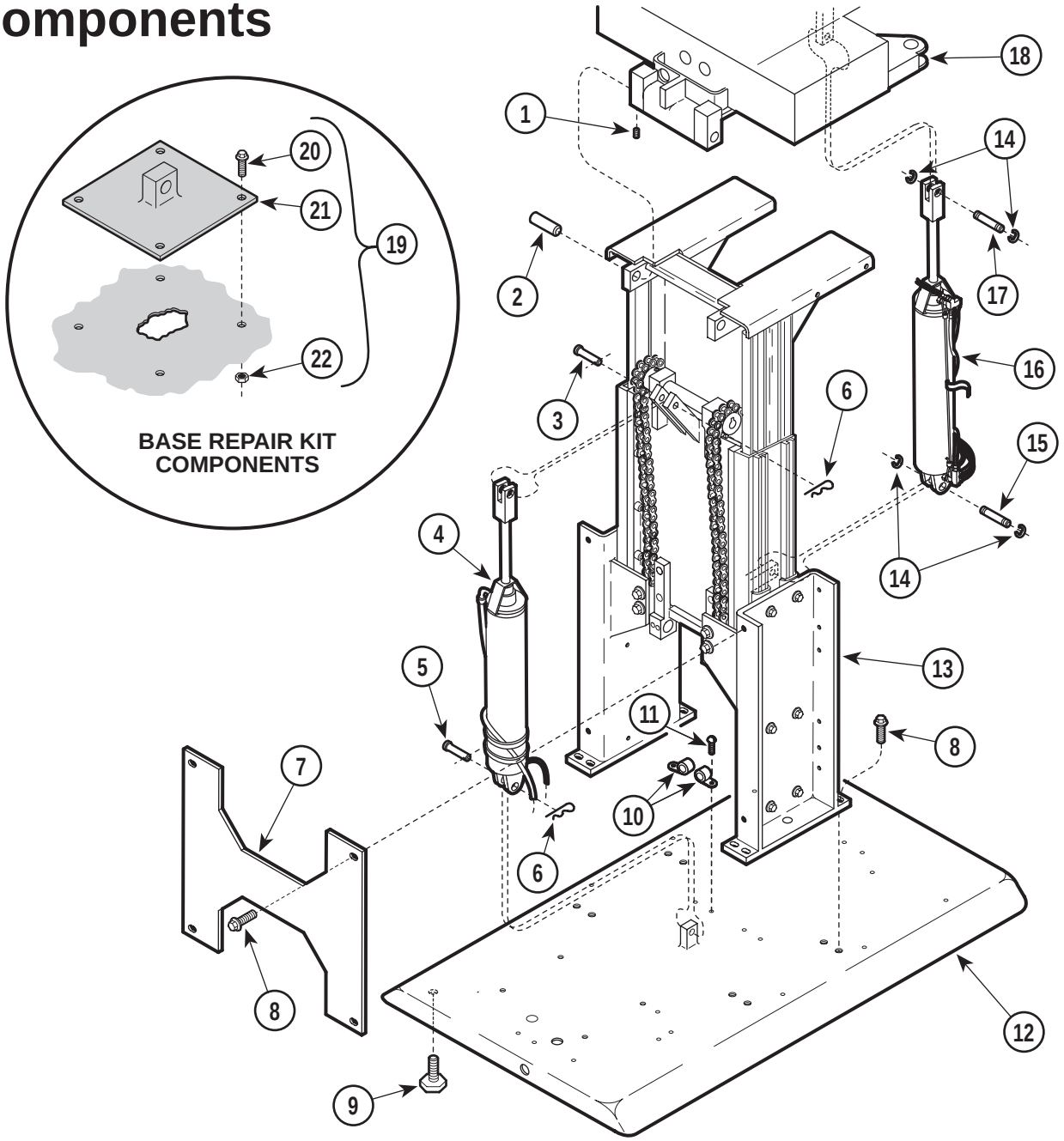
Base Mechanical Components



MA224201

Item	Part No.	Description	Qty.
1	040-0250-04	Set Screw	4
2	057-0027-00	Tilt Pivot Pin	2
3	042-0005-03	Clevis Pin	1
4		Base Cylinder (Refer to "Hydraulic System" Elsewhere)	Ref
5	042-0005-01	Clevis Pin	1
6	042-0004-00	Hitch Pin Clip	2
7	050-1475-40	Brace	1
8	040-0375-00	Screw	12
9	016-0001-00	Leveling Screw	4
10	015-0001-00	Wire Clip	2
11	040-0010-04	Screw	2
12	030-1057-00	Stationary Base Weldment	1
	• 042-0045-01	• Nutsert	2

Item	Part No.	Description	Qty.
13		Base Slide Assembly (Refer to Breakdown Elsewhere)	Ref
14	042-0007-00	E-Ring	4
15	042-0006-01	Clevis Pin	1
16		Tilt Cylinder Assembly (Refer to "Hydraulic System" Elsewhere)	Ref
17	042-0006-00	Clevis Pin	1
18		Seat Weldment (Refer to "Seat Components" Elsewhere)	Ref
19	002-0514-00	Base Repair Kit (Includes Items 20 thru 22)	1
20	• 040-0010-88	• Screw	4
21	• 030-0250-00	• Base Cylinder Mount Weldment	1
22	• 041-0250-13	• Nut	4

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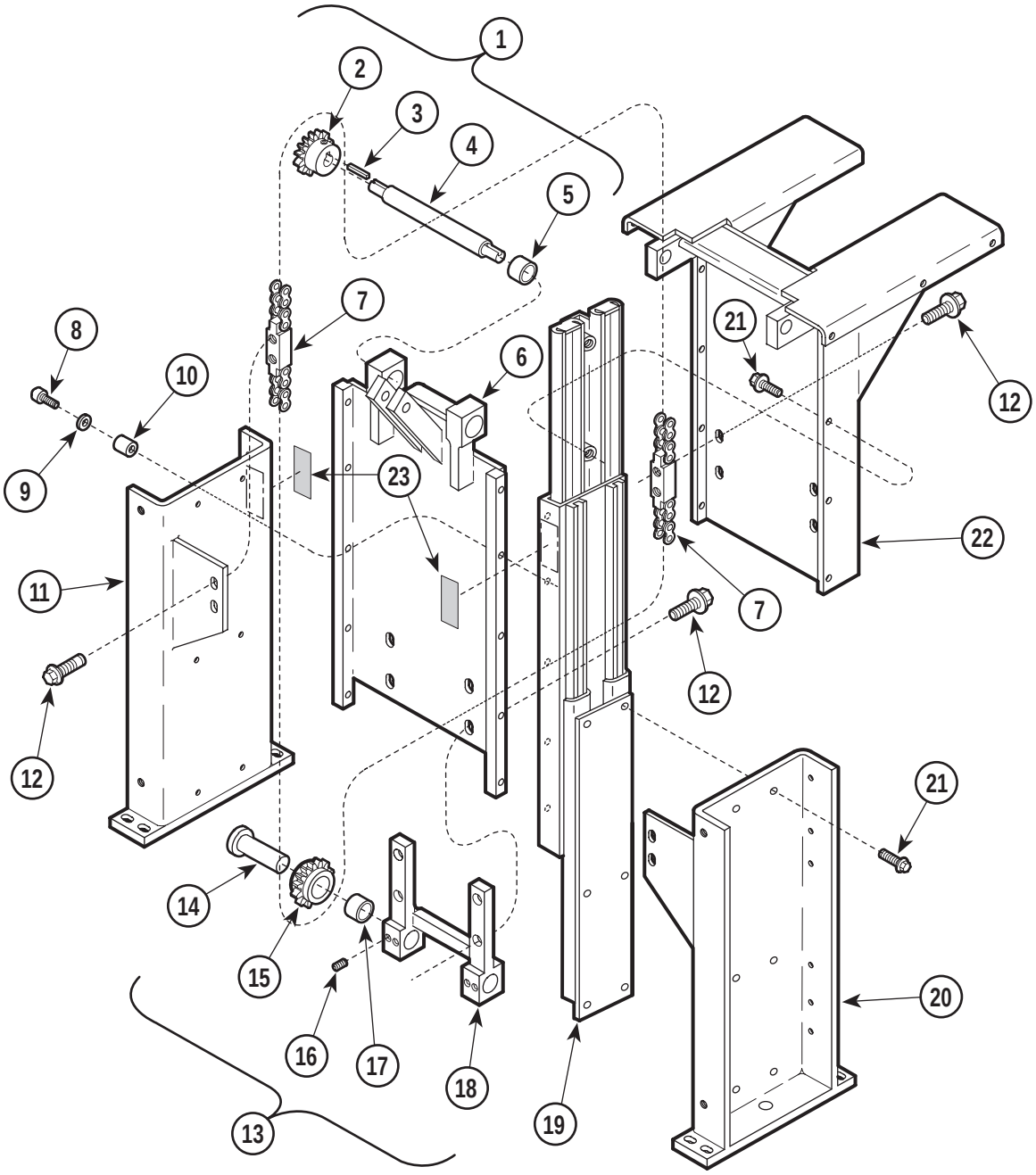
Base Slide Assembly



MA224100

Item	Part No.	Description	Qty.
	029-0069-03	Base Slide Assembly (Includes Items 1 thru 22)	1
1	• 029-0072-05	• Middle Member Assembly (Includes Items 2 thru 6)	1
2	• • 016-0151-00	• • Sprocket (Includes Set Screw)	2
3	• • 042-0008-00	• • Machine Key	2
4	• • 057-0105-00	• • Axle	1
5	• • 016-0149-00	• • Bearing	2
6	• • 030-0094-40	• • Middle Member Weldment	1
7	• 029-0070-00	• Chain Assembly	2
8	• 040-0008-30	• Screw	10
9	• 045-0001-10	• Lockwasher	10
10	• 052-0015-00	• Spacer	10
11	• 030-0092-41	• L.H. Support Channel Weldment	1
12	• 040-0375-00	• Screw	12
13	• 029-0071-03	• Idler Adjuster Assembly (Includes Items 14 thru 18)	1
14	• • 030-0274-00	• • Journal Weldment	1
15	• • 016-0152-00	• • Sprocket	2
16	• • 040-0250-04	• • Set Screw	4
17	• • 016-0149-00	• • Bearing	2
18	• • 030-0273-40	• • Idler Adjuster Weldment	1
19	• 016-0234-01	• L.H. Base Slide (Opposite)	1
	• 016-0234-00	• R.H. Base Slide (Shown)	1
20	• 030-0092-40	• R.H. Support Channel Weldment	1
21	• 040-0250-88	• Screw	20
22	• 030-0917.-42	• Inner Member Weldment	1
23	061-0045-00	Cover Caution Label	2

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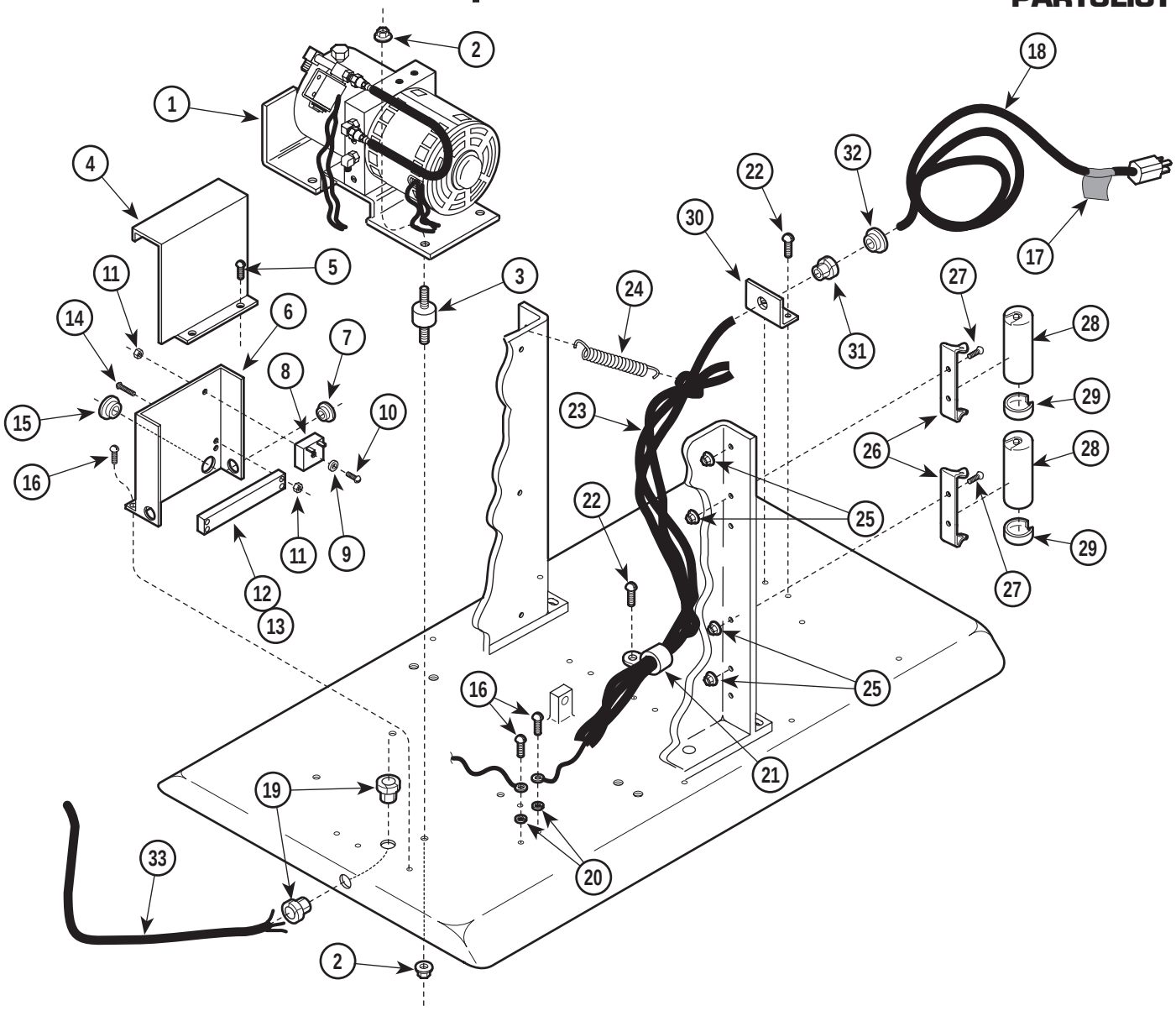
Base Electrical Components



MA471400

Item	Part No.	Description	Qty.
1		Motor / Pump Assembly (Refer to Breakdown Elsewhere)	1
2	041-0250-13	Nut	8
3	053-0051-00	Motor Mount	4
4	050-1533-40	Control Cover	1
5	040-0010-34	Screw	2
6	050-1532-40	Control Panel	1
7	053-0068-09	Snap Bushing	2
8	002-0041-00	Time Delay Relay Kit	1
9	045-0001-21	Washer	1
10	040-0006-00	Screw	1
11	041-0006-01	Nut	3
12	015-0009-01	Terminal Block	1
13	015-0022-01	Jumper (Not Shown)	1
14	040-0006-33	Screw	2
15	053-0068-06	Snap Bushing	1
16	040-0010-47	Screw	3
17	061-0034-00	Cord Tag	1

Item	Part No.	Description	Qty.
18	002-0040-00	Power Cord Set Kit	1
19	015-0002-01	Strain Relief Bushing	2
20	045-0001-31	Lockwasher	5
21	015-0014-00	Wire Clip	1
22	040-0010-04	Screw	3
23		Wire Assembly (Refer to "Wiring Diagram" Elsewhere {Section 5})	Ref
24	025-0025-00	Spring	1
25	041-0010-02	Nut	4
26	015-0412-02	Capacitor Mounting Bracket	2
27	040-0010-28	Screw	4
28	002-0044-00	Capacitor Kit (124/149 MFD {250V})	2
29	015-0413-01	Capacitor Cap	2
30	050-0957-00	Strain Relief Bracket	1
31	015-0008-00	Strain Relief Bushing	1
32	053-0068-10	Snap Bushing	1
33		Foot Control Cord (Refer to " Foot Control Assembly" Elsewhere")	Ref

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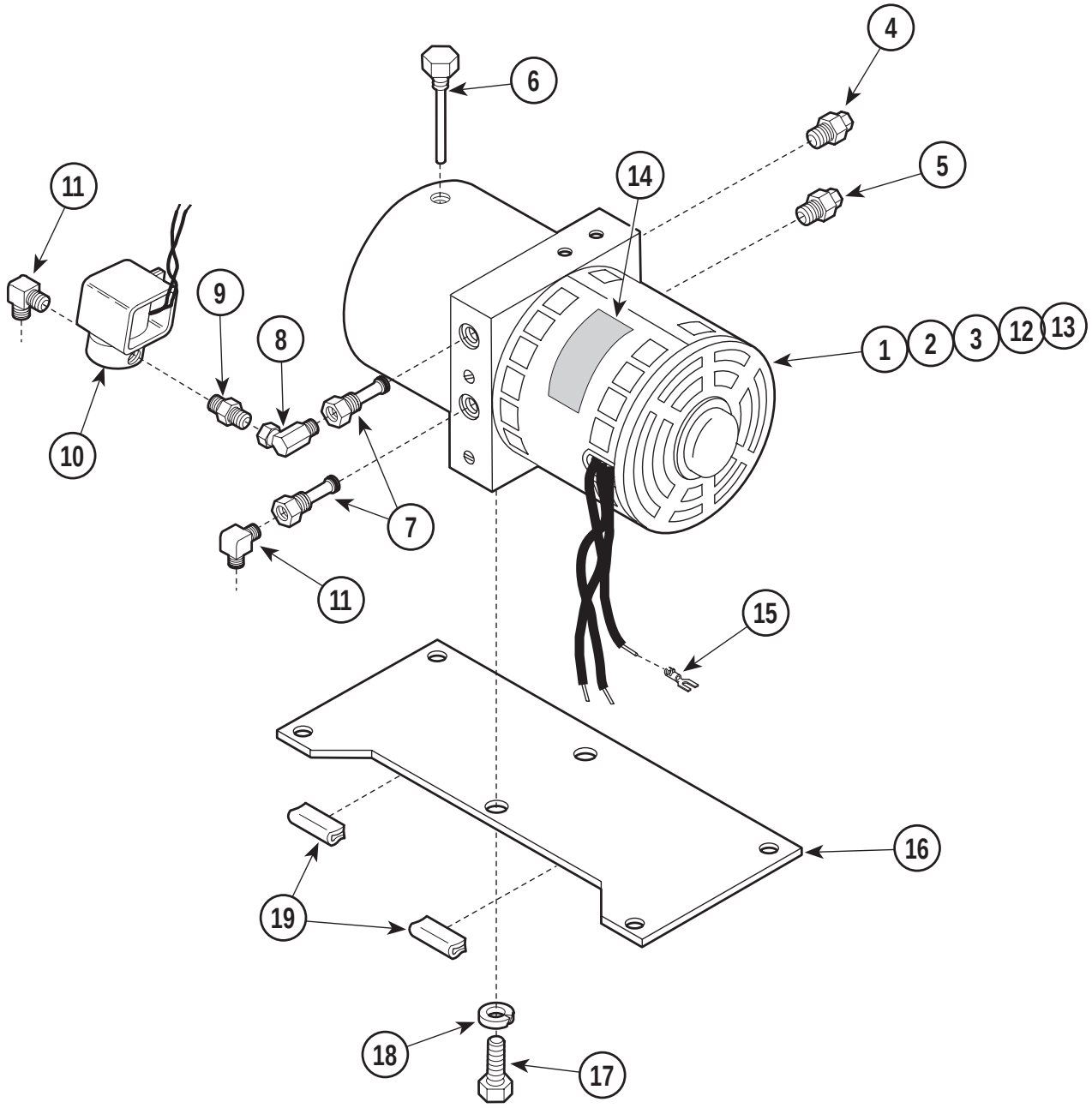
Motor / Pump Components



MA531100

Item	Part No.	Description	Qty.	Item	Part No.	Description	Qty.
1	002-0444-00	Motor / Pump Assembly (Includes Items 2 thru 11)	1	10	• 002-0038-00	• Anticavitation Solenoid Valve	1
2	• 014-0169-00	• Motor Shaft Seal (Not Shown)	1	11	• 014-0096-00	• Elbow	2
3	• 014-0262-02	• O-Ring (Not Shown)	1	12	• 014-0020-00	• Mineral Oil	2
4	• 014-0248-00	• Relief Valve (Low Pressure)	1	13	• 014-0007-00	• Pipe Sealant	2
5	• 014-0249-00	• Relief Valve (High Pressure)	1	14	061-0135-00	Motor Caution Label	1
6	• 014-0262-01	• Filler Cap	1	15	015-0018-03	Spring Spade Terminal	5
7	• 014-0168-00	• Shuttle Valve	2	16	050-2662-40	Motor Base	1
8	• 014-0260-00	• Elbow	1	17	040-0500-02	Screw	2
9	• 014-0045-00	• Connector	1	18	045-0001-33	Lockwasher	2
				19	016-0360-00	Trim Lock (Specify Length - 2")	2

Always Specify Model & Serial Number

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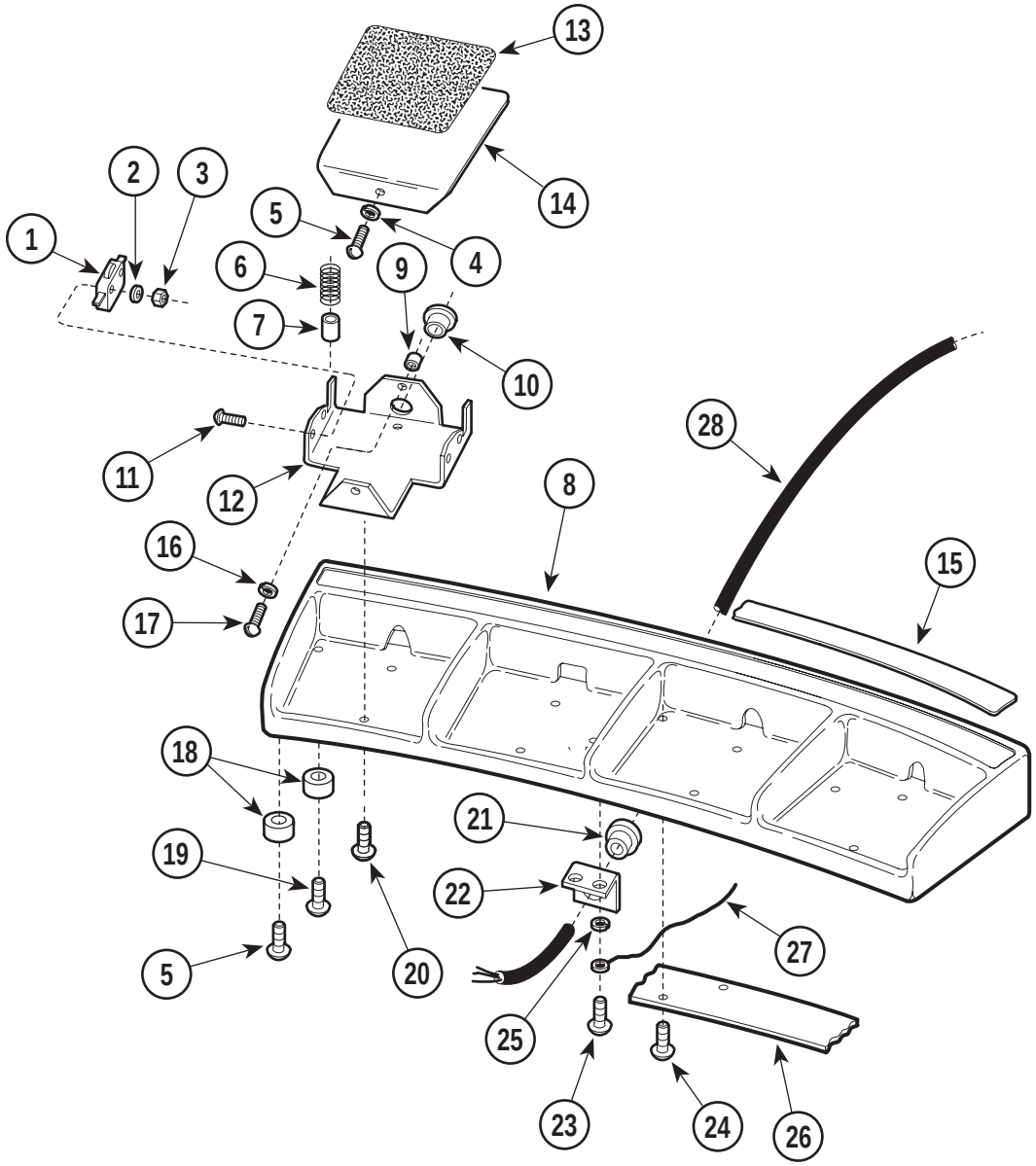
Foot Control Assembly



MA226600

Item	Part No.	Description	Qty.
	015-0606-02	Foot Control Assembly (Includes Items 1 thru 22)	1
1	• 002-0045-00	• Switch	8
2	• 045-0001-07	• Washer	16
3	• 041-0003-00	• Nut	16
4	• 052-0076-00	• Spacer	4
5	• 040-0010-04	• Screw	6
6	• 025-0009-00	• Spring	8
7	• 052-0010-00	• Spacer	8
8	• 020-0144-03	• Foot Control Casting	1
9	• 052-0075-00	• Spacer	4
10	• 053-0155-00	• Split Bushing (Early Units Only)	4
11	• 040-0003-00	• Screw	16
12	• 050-3258-00	• Step Mount	4
13	• 053-0154-00	• Foot Tread	4
14	• 050-0941-04	• Pedal	4
15	• 061-0427-00	• Decal	1
16	• 045-0001-08	• Washer	4
17	• 040-0010-36	• Screw	4
18	• 053-0156-00	• Glide	6
19	• 040-0010-35	• Screw	4
20	• 040-0010-52	• Screw	8
21	• 015-0008-00	• Strain Relief Bushing	1
22	• 050-0957-00	• Strain Relief Bracket	1
23	040-0010-04	Screw	2
24	040-0010-47	Screw	7
25	045-0001-08	Lockwasher	2
26	050-0942-00	Wire Channel Cover	1
27		Ground Wire (Refer to "Wiring Diagram" {Section 5})	Ref
28	002-0048-00	Foot Control Cord (Refer to "Wiring Diagram" {Section 5})	Ref
29	002-0491-00	Footswitch Cover Kit (Not Shown)	1

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COMMENTS

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FAX ORDERING FORM

(SERVICE PARTS ONLY)

NOTES:

- **ALL BLOCKED AREAS MUST BE COMPLETED.**
- **USE FOR NON-WARRANTY FAX ORDERS ONLY. WARRANTY ORDERS MUST BE TELEPHONED IN (1-800-MIDMARK).**

ATTENTION: SERVICE DEPARTMENT FAX#: 877-249-1793

ACCT #: _____ **P.O. #:** _____ **DATE:** _____

NAME: _____ **SHIP TO:** _____

ADDRESS: _____

CITY, ST.: _____

CONTACT: _____

PHONE: _____

☐ **NON-EMERGENCY ORDER - TO SHIP WITHIN 72 HOURS IF PART(S) IN STOCK.**

☐ **EMERGENCY ORDER - TO SHIP WITHIN 24 HOURS IF PART(S) IN STOCK (IF ORDER IS RECEIVED BEFORE 1:30 P.M. E.S.T).**

SEND NOTIFICATION IF PARTS ARE NOT AVAILABLE TO SHIP WITHIN 24 HOURS VIA E-MAIL OR FAX TO: _____

METHOD OF SHIPMENT **OTHER** _____

UPS	FED EX
☐ NEXT DAY A.M.	☐ NEXT DAY A.M.
☐ NEXT DAY P.M.	☐ NEXT DAY P.M.
☐ 2ND DAY	☐ 2ND DAY
☐ GROUND	☐ ECONOMY

QTY.	PART #	DESCRIPTION (SPECIFY COLOR OF ITEM IF APPLICABLE)	COLOR CODE	PRICE/PER

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